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Educação para todos –"free to those who can afford it": Human capital and inequality persistence in 21st C Brazil.[*]

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ABSTRACT

As one of the world's most unequal societies, Brazil is often referred to as a land of contrasts: the causes of its high levels of income inequality continuously debated. When solutions are discussed, one of the more frequently recited policy prescriptions is to expand the supply of education within the economy. Through utilisation of socio-economic profiles of students who subscribed to and were enrolled in Universidade Estadual de Campinas (UNICAMP), one of the more progressive public higher education establishments, the data indicates that, between1987- 2010, the Brazilian education system could in fact have exacerbated inequality, despite society having undertaken national educational expansion. The data illustrates how, during the period analysed, less than 35% of UNICAMP students attended only public education; and that moreover, while 61% had attended entrance examination preparation courses, nearly three quarters of participants at these examinations failed to be enrolled at the first time of asking. It is also estimated that more than 60% of UNICAMP students are from households from the 9th and 10th income decile.

With the socio-economic profiles of public higher education tending to favour high income households, the curative effects of educational expansion on income inequality appear to be paradoxical. Therefore, a more qualitative approach to public education expansion may be required if a more egalitarian society is to be engendered by tuition-free public higher institutions.

[*] I appreciate the advice and passion of my supervisor. Tracy Keefe has copy-edited the paper and greatly improved the presentation of tables in the appendix.

'There will only be democracy in Brazil the day the machine that prepares people for democracy – the public school – is assembled in Brazil'

Anísio Spínola Teixeira[1]

1. Brazil and Inequality

Around the turn of the century, Brazil became part of the emerging global economic powers, labelled the BRICs.[2] In 2012, Brazil's output is predicted to overtake the United Kingdom (UK), and become the sixth largest economy on the planet. The growth of both Brazil and the BRICs highlight a potential shift in economic and political power away from the traditional G7 countries; this change may prove an important bookmark in global history.

However, regardless of Brazil's impressive recent economic growth, the nation continues to wrestle with problems of poverty and inequality. The proportion of the population living on less than $1.25 a day (2005 PPP) has shown signs of improvement since re-democratisation, falling from 13.64% in 1987 to 6.01% in 2008.3 Moreover, despite this reduction in the proportion of its population in poverty, Brazil's high degree of inequality has persisted.4 By employing a Gini coefficient and income concentration measurements, Figures 1 & 2 compare income inequality in both the world's major and emerging economies; and in Latin America, from 1987-2006. The data reaffirms that the Brazilian economy features comparatively high levels of income inequality. Even today, this problem continues to persist. The highly negative impact of such inequality ranges from economic stagnation to high levels of criminal activity.[5] It would therefore be advantageous for Brazil and other economies with similar characteristics to address this problem immediately.

A number of avenues have been identified as methods with which to correct income inequalities. Recently, attempts have been made to distribute political power and decision-making more equally in the hope that this will help provide opportunities for hitherto excluded social groups, and lead to reductions in economic inequality.[6] Historically, governments have attempted to address the problem through land

[1] Bethell and Nicolau, 'Politics in Brazil', p. 272.
[2] O'Neill, *Building.*
[3] World databank, http://databank.worldbank.org/ddp/home.do?Step=1&id=4, retrieved 24th August, 2012.
[4] A large proportion of poverty reduction occurred post-1994 after the Real Plan which consisted of a mixture of inflationary control, liberalisation reforms and an expansion of social assistance programs. See Ferreira, Leite, and Ravallion, '*Poverty reduction*'.
[5] Alesina, and Rodrik, '*Distributive politics*'; Fajnzylber, Lederman, and Loayza, '*Inequality and violent*'.
[6] In 2012, the Supreme Court of Brazil adopted a policy of racial quotas.

redistribution or agricultural reforms; albeit thanks to modernization, land assets are not as influential in remedying this as was once the case.[7]

Through a combination of globalisation and industrialisation, income and wage differentials in the late 20th and early 21st centuries became driven increasingly by educational attainment. It is estimated that educational differences now account for over two thirds of identifiable sources of wage inequality.[8] Indeed, a body of academic and multilateral agency literature preaches the virtues of expanding education in an attempt to bridge the gaps created by unequal income distribution.[9]

Conversely, this study offers an alternative perspective with regard to the role played by education in income inequalities, by exploring the role of the Brazilian education system between 1987 and 2010. Section Two reviews and critically analyses the existing literature regarding the determinants of long term inequality, and the relationship between it and education - including the asset nature of education and its subsequent link to skill premiums - concluding with a discussion of the debate linking education as a solution to the problem.

Section Three will present a study of the Brazilian education system between 1987 and 2010. The study employs annual economic data for the period in question in order to present both the supply and demand side of the education system. At the same time, it uses questionnaire data from one of Brazil's tertiary educational establishments, UNICAMP. The socio-economic data reveals how less than 35% UNICAMP students attended only public education; 61% of students enrolled had attended a pre-vestibular course; nearly 75% of subscribers failed to be enrolled at the first time of asking; and more than 60% of students were from families in the 9th and 10th income deciles. Taken together, the case study highlights how simply expanding education can actually perpetuate income inequalities, rather than correct them.

After establishing that higher education in Brazil may not be accessible to low income households, Section Four will discuss the implications of the findings, and the specific contribution which the Brazilian education system may have had on persistent inequality. Finally, conclusions and recommendations will be offered in Section Five.

[7] In 1969, the National Institute for Rural Settlement and Agrarian Reform (INCRA) was created in Brazil.
[8] Barros, Mendonça, and Henriques, 'Education and equitable', p.47.
[9] Gasparini, and Lustig, 'The rise'; Székely and Montes. 'Poverty and inequality'; López-Calva and Lustig, '*Declining inequality*'; Barros and Mendonça, '*Os determinantes*'; Barros, Mendonça, and Henriques, 'Education and equitable'; Mohan and Sabot, '*Educational expansion*'.

2.Determinants of Long Run Inequality and Education

In order to address and analyse Brazil's high levels of inequality, it is necessary to explore its origins of unequal income distribution, and to what degree education has played a role. Historically, Latin America has suffered from high inequality; and many of the explanations for the problems in the region as a whole are closely related to the Brazilian experience. However, it must be acknowledged that the reasons behind such persistent inequality in the continent vary considerably.

The theories that suggest the strongest historical legacy link the problem with the consequences of colonisation. These hypotheses suggest that some forms of colonisation involved the establishment of small groups of elites, who enjoyed exclusive access to rents, land, education, and political decision-making.[10] The argument pioneered by Engerman and Sokoloff posits that colonies with labour intensive commodities featuring opportunities to utilise economies of scale resulted in unequal institutions. In Brazil, as in parts of the Caribbean, there was fertile soil and favourable climates which were conducive to cash crops such as sugar and coffee. These types of commodities were most cost-effectively produced on a large scale, using available slave labour. Communities which hosted these labour intensive products become populated by slaves available on world markets: between 1531-1855, around four million African slaves were moved to Brazil, over half of them arriving after 1781; and by the nineteenth century, the population of Brazil was 75-80% non-white, compared to around 20% in the United States (US) and Canada. This slave demographic effectively institutionalised unequal access and opportunity.[11]

By 1888, Brazilian law enshrined the abolition of slavery; but when this occurred, unequal distribution of wealth was used by the elite to create institutions which protected elite privileges and limited access to opportunity amongst the masses.[12] In contrast, commodities and climates which had no opportunities for the economies of scale found in North America influenced more inclusive institutions.[13] Education is regarded as among the institutions to be influenced by such inequality: as the elites could afford to fund their education privately through user fees without having to subsidise the masses, investments in it were not made; while high levels of inequality resulted in collective action problems in the establishment of universal education.[14]

Acemoglu et al. also contribute to the endowments and colonisation explanation of long run inequality; although, rather than focusing on commodities; they choose instead to single out the mortality rate of colonies in order to help explain the inclusivity of institutions. The hypotheses here state that colonial administrators would set up extractive institutions, which lacked laws and rights, in locations with relatively high mortality rates,

[10] Engerman and Sokoloff '*Factor endowments, inequality*', p. 3.
[11] Ibid., pp. 8-9; Bértola, and Williamson, 'Globalization in Latin', p. 26.
[12] Engerman and Sokoloff, '*Factor endowments, institutions',* pp. 11-12.
[13] Ibid., p. 3.
[14] Mariscal and Sokoloff, '*Schooling, suffrage*', p. 163.

and therefore lower levels of settled populations. Conversely, areas with low mortality rates provided the incentive for more inclusive institutions for migrating populations.[15]

However, Grafe and Irigoin have provided arguments which rebuff the perception that colonial rulers oversee such extractive regimes.[16] In the case of Brazil, the Acemoglu et al. analysis becomes more problematic: it distinguishes the country as a low mortality location, and notes how difficult it is to categorize its mortality rate because of its size and climate variation; although this observation could again help to explain Brazil's regional inequalities.[17] Indeed, large proportions of Brazilian inequality could be claimed to be regionally driven: as is most apparent when incomes in the north-east and south-east regions are compared.[18] Those approaches emphasising the importance of the colonial period would argue that these differences are the consequences of differences in the proportion of slave labour between one region and another; although it should be noted here that the South also had high levels of such labour: 75% of the slave population resided in Rio de Janeiro, São Paulo, and Minas Gerais.[19]

Alternatively, there are approaches which emphasise the importance of commodities in influencing different rates of regional growth; and therefore, inequality.[20] Historically, the north-east produced cotton and sugar; but when Brazil's comparative advantage shifted to the coffee exports of the south-east, large regional inequalities began to appear.[21]

A study by IMF economists into the historical record of education in São Paulo strengthened the possibility that the distribution and provision of education could well be influenced by factors of immigration.[22] The authors do not account for events prior to the twentieth century, but nevertheless identify a strong correlation among immigrants from nations with a form of public education, suggesting that areas which established this enjoyed clearly better educational outcomes at the end of the twentieth century. The study provides an interesting perspective by alluding to the effects of educational outcomes in the long term, and suggesting an element of path dependency.

Yet colonial approaches fail to account for the relatively low levels of inequality found in Latin America and Brazil before the twentieth century: a time when European economies such as Spain experienced higher levels of inequality than Brazil. Therefore, approaches which do not focus specifically on the colonial period have also developed. One such hypothesis suggests that wealth and land asset concentration created by colonisation did not perpetuate inequalities, until changes in technologies in the form of

[15] Acemoglu, Johnson, and Robinson, '*Colonial origins*'
[16] Grafe and Irigoin, '*A stakeholder empire*', p. 637.
[17] Acemoglu, Johnson, and Robinson, '*Colonial origins*', p. 34.
[18] Due to the nature and limitations of this research, the analysis will primarily focus on the relationship of inequality and education on a national basis rather than regionally.
[19] Leff, '*Economic development*', p. 253.
[20] Ibid., p. 245.
[21] Ibid., p. 256.
[22] Filho, Irineu, and Colistete, '*Education performance*', p. 3

railroads and refrigeration resulted in large commercial opportunities.[23] The growth of these did not result in the more equal society experienced by Western Europe, and predicted by the Kuznets curve;[24] the reason for this, it is argued, is due to institutional developmental experiments of import-substitution industrialisation strategies, as well as international alliances with Latin American elite regimes during the Cold War.[25] These enabled elites to maintain their privileges without either being held politically accountable, or had their excess rents questioned.

The institutional hypothesis here appears to correspond more to the historical empirical data, although it fails to account for the apparent continuation of high inequality long after the end of colonisation; nor inward looking developmental strategies, Cold War alliances or fresh attempts at democratisation.

Other authors have also questioned the idea that Brazil has always experienced high inequality. They too have alluded to the effects of globalisation on Latin American inequality, linking increased inequality with the effects of international trade rather than institutional choices. Milanovic et al. employed sources reporting on average income and data on social classes to conclude that until the late nineteenth century, Brazilian inequality was at the same level of OECD countries today.[26] Brazil's modern day problems were said to have been created by the international trade shift in Brazil's favour in the late nineteenth century: with the help of developments in transportation, including refrigeration, a primary commodity boom drove up land and mineral earnings relative to incomes, increasing inequality by an estimated 26.2%.[27] The international trade perspective put forward by Milanovic et al. appears to correspond to the historic empirical data on inequality, and could help explain the persistence of inequality following mid-century institutional experiments and the fracturing of Cold War alliances.

Data collated by Prados de la Escosura, shown in figure 3, contributes further to the idea that modern levels of inequality were reached at the turn of the nineteenth century.[28] Although authors such as Bértola have questioned the value of backward projected Gini-coefficient measurements and maintain that inequality was high at the end of colonial rule (but in the form of power relations rather than income), they can provide no alternative evidence in this regard.[29]

The majority of these conflicting approaches enjoy one thing in common: namely, broad agreement that high levels of inequality, regardless of their origins, have impacted upon the allocation and distribution of education as a public good. The approaches tend to agree that the resulting distribution and structure of education has been anything but conducive to growth, poverty alleviation and the eradication of high income inequality.

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[23] Coatsworth, '*Structures, endowments*', p. 140.
[24] Kuznets, '*Economic growth*'
[25] Coatsworth, '*Structures, endowments*', p. 131.
[26] Milanovic, Lindert, and Williamson, '*Pre-industrial*', p. 263.
[27] Williamson, '*Five centuries*', p. 247.
[28] Prados de la Escosura, '*Growth, inequality*', p. 39.
[29] Bértola, '*Institutions and the historical*', p. 13-18.

2.1 Relationship of Education with Inequality

Undoubtedly, education has played a role in creating the long term, persistent inequalities referred to above, regardless of their original cause. Paradoxically, education has also been the tool recommended to tackle economies with problems of high inequality. Before this chapter embarks on a discussion of the literature in this regard, it is necessary to clarify how education has such powerful policy potential as an asset, and how it can affect skill premiums.

2.1.1 Education as an Asset

Just as land, physical capital, and wealth are able to produce income, so too is an education. Economists have labelled education as human capital. In his seminal writings, from a macroeconomic perspective, Adam Smith referred to education as an investment in human capital with the characteristics of a public good.[30] Human capital is an important investment: unlike physical capital, it is expandable, and does not depreciate on the same scale; it can move location with individuals, which is why 'New Growth Theory' distinguishes human capital as an important growth factor.[31] Apart from its impact on incomes, education is an intrinsically valuable function for life itself, representing consumption good rather than an investment good.[32] Moreover, as a result of technological change, the demand for skilled labour increased tremendously, in the form of more skills based employment. From a microeconomic perspective, education has become a signal to employers as to the level of skill and knowledge of the potential employee.[33] It is therefore a form of investment for an individual that has future returns in the form of higher income.

During the late 1950s and 1960s, there occurred a 'human investment revolution in economic thought'.[34] This revolution involved a group of Chicago economists, who promoted the idea that investment in human capital consisted of training, schooling, health, and residual knowledge.[35]

In the case of education, 'schooling' was identified as an institution designed to offer attendees training which was not role-specific, but rather, advanced broad skills.[36] The Chicago economists significantly contributed to the evidence of a relationship

[30] Smith and Sutherland, *An inquiry*, p. 166.
[31] Economic growth theory such as Romer (1986) emphasises how knowledge is an endogenous factor with increasing marginal productivity.
[32] Sen, *Development as freedom*, p. 11.
[33] Spence, '*Job market*', p. 358.
[34] Bowman, '*The human investment*', p. 112.
[35] Mincer, '*Investment in human*', p. 285; Schultz, '*Investment in human*', p. 9; Becker, '*Human capital*', p. 16.
[36] Becker, '*Human capital*', p. 37.

between education and higher wages. Similar to the classical view of physical capital, individuals with better skills and knowledge have higher productivity and are compensated at a higher rate. An individual can choose to defer their leisure time in favour of investments in education to increase their knowledge and skills for a higher rate of compensation in the labour market.

Using this conceptual basis, studies confirmed that higher education levels corresponded with higher rates of income. The level of return varies on economic conditions where that education is employed. In the case of the US, Ashenfelter and Krueger first provided a more natural experiment by analysing genetically identical twins, thus eradicating workers ability and residual factors.[37] Using sophisticated econometric techniques, some years later, Card produced similar results to Ashenfelter and Krueger: indicating that an additional year of schooling is worth an international average of 10% additional returns.[38] Using US data, Card displays how there are increasing marginal returns of education, reaching a peak with PhD qualification.[39] International research has identified Latin America and the Caribbean as the area with the highest average return to schooling.[40]

Card's US findings have been replicated in the case of Brazil, in such studies as Barros et al, showing that the first and last years of additional education have the greatest returns.[41] In fact, returns to schooling in Brazil and other middle income economies are estimated to be 5% to 8% greater than in high income economies, due to a high degree of industrialisation alongside relatively low average levels of schooling.[42] However, research in Brazil has also provided a check on the amount of influence which schooling has on increasing returns: suggesting that the effects of additional education decline by as much as one-third when family background is considered.[43] With education being an asset, skill premiums are just one of the potential gains to education assets.

2.1.2 Skill Premiums

Adam Smith also commented on the perceived skill premium within an economy.[44] Social scientists have long deployed a supply and demand framework in order to illustrate how a skill premium exists in labour markets.[45] The demand of skills is derived from consumers, who wish to purchase goods and services that require varying degrees of skills

[37] Ashenfelter and Krueger, '*Estimate of the economic*', p. 1171.
[38] Card, 'The causal effect', p. 1085.
[39] Ibid., p. 1807.
[40] Psacharopoulos and Patrinos, '*Returns to investment*', p. 112.
[41] Barros, Carvalho, Franco, and Mendonça, '*Markets, the state*', p. 50.
[42] Lam and Levison, '*Age, experience*', p. 241.
[43] Lam and Schoeni '*Effects of family*', p. 771.
[44] Smith and Sutherland, *An inquiry*, p. 97.
[45] Tinbergen, '*Income differences*', p. 15.

to create. A top solicitor requires a huge amount of knowledge, learnt in a reputable institute of law education: whereas, for example, a removal labourer requires the skill of strength to carry out their duties, but this skill is derived from natural strength, which can be either literally natural, or gained through exercise.

The supply of skills is influenced by demographic and institutional factors which provide the education and training needed to meet demands in the labour market. Skilled workers, who have undertaken education or a training investment, will not make the initial investments unless there is a good chance that they will receive an eventual return on them; and therefore, a higher rate of income compared to those who choose not to invest at all.

Through factors such as international trade and technological change, the demand side can change quickly; while on the supply side, demographic features and institutions such as public education can affect the supply of skills. Tinbergen has described this process as a race between the provision of education and technological advance.[46] As education is the mechanism which can provide more skilled workers, the fewer the skilled workers available, the higher the skill premium will be in their wages. Moreover, as trade is the mechanism which requires skilled labour, the more demand there is for skilled labour, the higher the skill premium will be. A cyclical nature to skill premiums has also been identified, in that the high skills required as a result of technological change also increase the chances of further technological change: which in turn increases the demand for high skilled labour and replacing low skilled labour with capital.[47]

Above all, what becomes clear from reviewing the literature on education as an asset is that a large proportion of income inequality is merely a reflection of education inequality.

2.1.3 Education as a Solution

During the twentieth century, levels of education have become the most reliable indicators with which to predict incomes: meaning it can be assumed that if income inequality is to decrease, access to education must be evenly distributed across the population, and even skewed towards low-income households in order to tackle the existing income gap.[48] This is a common prescription by scholars within recent and old literature focusing on both international and country specific cases.

One of the more early links between education and inequality was put forward by Becker and Chiswick, building on Becker's early work.[49] Together, they comment on how the unequal distribution of education South America corresponds with income

[46] Ibid., p. 35.
[47] Acemoglu, '*Patterns of skill*', p. 220.
[48] At the same time, subsidies and redistributions of income must be pro-poor if there is to be a decrease in income inequality.
[49] Becker and Chiswick, '*Education and the distribution*', p. 367.

distribution.[50] Tinbergen also concludes his analysis by conjuring up a neat analogy of a 'race': access to education must be more evenly distributed if it is to win the 'race' against technology, and combat income inequality pressures from a higher skill premium.[51] According to Székely and Montes, the Brazilian education system has not expanded rapidly enough to satisfy the demand for a highly educated labour force, thus failing Tinbergen's 'race', and contributing to the widening of the income inequality gap.[52]

A lot of work has been quick to applaud the influence of education policy on reducing income inequality. Barros et al. demonstrate how half of the decline in income inequality during two periods (1977-81 and 2001-7)[53] in Brazil was due to an acceleration of educational progress and a decrease in the skill premium.[54] Gasparini and Lustig have also attributed part of the recent decline in income inequality to basic education expansion during the 1990s and a reduction in the skill premium.[55]

In terms of education's effects on income inequality, there are said to be two channels: namely, quantity effect and price effect. The former holds that the greater the variation of education levels, the greater the income inequality. The latter has it that the larger the earnings differential per education level, the greater the income inequality.[56] Using the concept of the quantity affect, Sattinger highlights the potential effects of increased provisions of education.[57] With an increase in the supply of skilled labour, the rate of returns for high skilled labour may decline.

Influenced by the above, research specific to Brazil has also advised of the curing properties found in education. Government funded economic think tanks have published research which promotes the idea of education as a solution to high inequality levels. In particular, the Instituto de Pesquisa Econômica Aplicada (IPEA), have published research which recommends that any education policy which increases the proportion of the population who complete primary education will help reduce the inequality in education, and therefore in income.[58] The authors go further by casting doubt on the existence of any better alternative policy recommendations; they argue that wage differentials by education level account for an estimated 35-50%, a high figure when compared internationally.[59] Similar research by the same authors has recommended education as a potential equalizer of persistent inequalities, describing it as a 'fundamental condition'.[60]

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[50] For the purpose of robustness, they carry out similar calculations with similar results for other regions and nations.
[51] Tinbergen, '*Income differences*', p. 61.
[52] Székely and Montes, 'Poverty and inequality', p.633-40.
[53] Though inequality declined, it was not dramatic enough to solve Brazil's continuing problem with the issue.
[54] Barros, Carvalho, Franco, and Mendonça, '*Markets, the state*', p. 48.
[55] Gasparini, and Lustig, 'The rise', p. 705.
[56] Barros, Carvalho, Franco, and Mendonça, '*Markets, the state*', p. 49.
[57] Sattinger, '*Assignment models*', p. 871.
[58] Barros and Mendonça, '*Os determinantes*', p. 51.
[59] Ibid., p. 48.
[60] Barros, Mendonça, and Henriques, 'Education and equitable', p. 43.

The authors base their recommendations on the finding that educational heterogeneities contribute to 40% of wage inequalities;[61] and emphasize the inverted U-shaped relationship between mean schooling and inequality.[62] They derive this relationship by arguing that when mean schooling is low, so too is inequality; and that similarly, when mean schooling is high but inequality peaks when mean schooling reaches intermediary levels.

A similar conclusion is offered by Almeida dos Reis and Barros, even though their approach to inequality is derived from a regional perspective. Like others, they conclude that around half of wage inequalities in Brazil transpire from educational inequalities. They also conclude that this is due to a high skill premium within Brazil, and recommend a more broad distribution of education in order to decrease the skill premium.[63]

Empirical research on the effects of education on inequality has not been constrained to Brazil. Mohan and Sabot illustrate how the expansion of secondary and tertiary education in Colombia during the 1970s applied pressure on income inequalities: calculating that the effects on inequality by increasing incomes through education (composition effects) were outweighed by that of reducing the skill premium (compression effect).[64] Outside Latin America, Sabot collaborated with Knight and reached a similar conclusion in Tanzania and Kenya in 1980: namely, that educational expansion has the effect of reducing inequality.[65]

However, some authors have questioned the healing power of education on unevenly distributed income. In a study on behalf of the World Bank, Patrinos et al. show how increased educational investments are estimated to have different effects on income inequality; and conclude that these are due to job mobility, skill shortages, differing labour market links between productivity and pay, and different levels of access to education.[66] Their research found that education investment will result in increased inequality.[67]

The above section has reviewed the literature which emphasises the equalising effects of education both nationally and internationally. The following chapter will analyse the Brazilian education system between 1987 and 2010, in order to consider how education itself impacts upon income inequality.

[61] Ibid., p. 47.
[62] Ibid., p. 50.
[63] Reis and Barros. '*Wage inequality*', p. 141.
[64] Mohan and Sabot, '*Educational expansion*', p. 181.
[65] Knight and Sabot, '*Educational expansion*', p. 1136.
[66] Patrinos, Ridao-Cano, and Sakellariou, '*Estimating the returns*', p. 23.
[67] Ibid., p. 13.

3. Brazilian Education System Post Re-Democratisation 1987- 2010

3.1 Supply-side of Education

3.1.1 Structure

At all levels in Brazil, education has been supplied by different types of institutions: be they municipal, state, federal, private or religious. Together, they are all responsible for the organisation of their own education services by working together to ensure that standards are consistent throughout Brazil.[68] Table 3 displays the various levels of governance in the provision of Brazilian education.

Table 3. Levels of Governance of Education

Federal	**Ministry of Education (MEC)**	**National Council of Education (CNE)***	
		Council of Basic Education	**Higher Education Council**
State	State Secretary of Education (SE)	State Council of Education (CEE)	
Municipal	Secretary/Department of Education	Municipal Council of Education (CME)	
Public & Private Schools	School councils (CE)		

Note: * Until 1995 when replaced by the two councils below
Source: Inspired by Gadotti, 'Contemporary Brazilian', p. 128-9.

The education system comprises two levels, basic education and higher education (*ensino superior*): the latter incorporating graduate and post-graduate education. Basic education consists of three tiers: pre-school education (*educação infantil*); basic education (*ensino fundamental*); and secondary education (*ensino médio*). Basic education is compulsory for children aged between seven and fourteen. *Ensino fundamental* takes a minimum of eight years to complete; while *ensino médio* lasts a minimum of three years, and is designed for 15-17 year olds. In order to enrol in further education, a student must have completed their previous level of study. The national education guidelines state that a school year comprises a minimum of 200 days with a maximum of 35 students per class, although many education institutions continued to operate for 180 days.[69]

To ensure consistent levels and that students are ready to progress to the next stage of education, a national test, SAEB (Standard Assessment for Basic Education) is

[68] Constitution of The Federative Republic of Brazil 1988, Article 211.
[69] Gadotti, 'Contemporary Brazilian', p. 130.

taken by 10 and 14 year olds to assess *ensino fundamental*; ENEM (*Exame Nacional do Ensino Médio*) by 17 year olds; and *Provão* at *Ensino Superior* institutions. All help to compare the individual performance of educational institutions. The ENEM also provides the means with which to gain points towards ProUni, a funding system for private university expenses. In order to enrol in a public *ensino* superior institute, students are required to pass an entry examination: known for the majority of the second half of the twentieth century as a *vestibular*. It is co-ordinated by organisations individually chosen by each higher education institution.[70]

Table 4. Structure of the Brazilian Basic Education System

Age	Séries	Brazilian Structure	Previous Terminologies
1		Educação Infantil	Ensino Pr**é**-Escola/Pr**é**-Primario/ Pr**é**-1.º Grau.
2			
3			
4			
5			
6			
7	1st	Ensino Fundamental	1.º Grau.
8	2nd		
9	3rd		
10	4th		
11	5th		
12	6th		
13	7th		
14	8th		
15	1st	Ensino Médio	2.º Grau.
16	2nd		
17	3rd		
18	possible 4th	Ensino Médio or Ensino Superior	2/3.º Grau.
18+		Ensino Superior	3.º Grau.

Note: Shading indicates grade at which examinations are undertaken.
Source: Inspired by Alberto Rodriguez (2002) in Verner, 'Education and its poverty', p. 16 and Gadotti, 'Contemporary Brazilian', p. 130, Anuário Estatístico do Brasil 1982-2011.

Figure 4 illustrates the supply of educational establishments in Brazil at all levels between 1981 and 2011. The statistics display an increase in education supply over the period (62,405 extra education units). Both the private and public sectors have increased by similar numbers; however, the former began at such a low level that it represents one of the most notable changes over the last thirty years.

[70] See Empirical UNICAMP Vestibular Data 1987-2011 for more details.

From the 1930s onwards, the Brazilian higher education system became more and more overstretched: resulting ultimately in vast levels of reform in 1968.[71] Ever since the military dictatorship opened the door to the expansion of private higher education in that year, the latter has continued to expand, and come to dominate the supply of higher education.[72]

Pré-escola has also rapidly expanded over the period in question: albeit, more through public than private suppliers. Surprisingly, *ensino fundamental* has contracted: a decrease which would have been even more severe was it not for an expansion by private education. Apart from p*ré-escola*, the public education provision at the level of *Ensino médio* has expanded more rapidly than any other level of education, particularly at state governance. Both public and private supply of *ensino superior* level has also increased, but to a significantly greater extent amongst the private sector.

When analysing the supply side of education, as well as observing the structure of the system, it is also important to establish the extent of its success in engaging with the population. Figure 5 shows the quantity of enrolments from 1987-2010 at the four levels of education. Despite the data revealing accounting inconsistencies regarding categorisations over time, it can still provide a crude illustration of the coverage.[73]

As would be expected, enrolments at all levels of education have increased: albeit more in some areas than others. The largest rise was at *ensino superior* level: chiefly driven by an expansion in the private sector at the turn of the century.

The next largest increase occurred at *ensino médio*, driven entirely by the public provision which began in the early 1990s, while the private provision actually contracted. Fernando Henrique Cardoso had campaigned for his second term as President (1999-2002) with a promise to tackle inequalities, by using measures which included education.[74] The Cardoso administration has been accredited with the observed increase in secondary education enrolment, by using policy instruments such as *Bolsa Escola*, a cash transfer designed to strengthen education incentives.[75]

Strikingly, *ensino fundamental* enrolments did not expand at a pace similar to other levels of education, and maintained similarly modest increases at both public and private level.

After observing the structure and coverage of education, the next chapter takes a look at how it is financed; its cost effectiveness at each level of education; and attempts cross country comparisons.

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[71] Schwartzman, '*Brazil: opportunity*', p. 101.
[72] Siqueira, '*Higher education*', p. 170.
[73] An example of accounting inconsistencies is one student counting for more than one enrolment; as well as annual data being missing.
[74] Bethell and Nicolau, 'Politics in Brazil', p. 267.
[75] Skidmore, '*Brazil's persistent*', p. 144.

3.1.3 Financing

As early as in 1824, the principle of free elementary education was instigated as a requirement for state administrations to provide, albeit this was generally ignored, leaving the majority of the population illiterate.[76] In 1930, a Ministry of Education (MEC) was created; and the constitutions between 1934 and 1946 began to include specific chapters on education, insisting that a national system should be provided by the federal government, and that states and municipalities spend between 10 and 20 % of their revenue on education.[77] From 1930 -1945, a rapid expansion in public education occurred;[78] and during the democratic years of the Second Republic between 1946 and 1964, free tuition in public institutions, repeatedly demanded by students and academics alike, became increasingly common.[79]

Yet despite these continuous reforms, by 1991, 20.1% of people over 14 years of age remained illiterate.[80] The 1980s had been overshadowed by the debt crisis which gripped Latin America: in order to combat it, international financial institutions advised all Latin American governments to retract social spending and focus on debt repayment, which thereby encouraged further expansion of the private education sector and user fees.[81] The authoritarian and military rule in place at the beginning of this period countenanced no public engagement on education policies; but by 1985, re-democratisation was underway.

The education system is financed by all three levels of Brazilian government. Around 70% of revenue is generated at union level, a fifth through state revenues, and a tenth through municipalities.[82] It has been questioned how practical it is for low income municipalities to compete with their richer counterparts on providing the same quality of public education.[83]

Article 206, item V, of the new constitution of 1988, re-established that among all other levels of education, higher education from public institutions should be tuition free.[84] The constitution itself was constructed by socially organised groups, with the aim of providing an education system which could eradicate illiteracy from Brazil through universal primary education.[85]

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[76] Gadotti, 'Contemporary Brazilian', p. 123.
[77] Ibid., p. 126.
[78] Ibid., p. 126.
[79] Siqueira, '*Higher education*', p. 170.
[80] IBGE, 'Taxa de', http://seriesestatisticas.ibge.gov.br/series.aspx?vcodigo=CD101&sv=8&t=taxa-de-analfabetismo-de-pessoas-de-15-anos-ou-mais-de-idade-por-grupos-de-idade, retrieved 24th August, 2012.
[81] Siqueira, '*Higher education*', p. 171.
[82] See Table 7.
[83] Verner, '*Education and its poverty*', p. 16.
[84] Siqueira, '*Higher education*', p. 171
[85] Gadotti, 'Contemporary Brazilian', p. 124.

Also included in the new constitution was the National Fund for Basic Education (FUNDEF). This was designed to ensure a level playing field regarding education throughout Brazil. It ensured that the federal government would spend 18% of its income on education; while states and municipalities would spend 25%, thereby decentralising some of the federal role in education.[86]

Even today, ensino fundamental does not require service fees, and is funded by municipalities and states. Each municipality is required by the Federal government to spend 25% of its tax income on ensino fundamental.[87] Ensino médio is funded by the state government and is also free from fees - although there is the option of enrolling into privately funded primary and secondary education institutions which require tuition fees, regulated by individual states that set a price ceiling. This ceiling was seriously affected by the inflation of the late 1980s.[88]

Once a student has enrolled into higher education, whether they contribute directly towards the cost depends upon what kind of institution they are studying in. Public universities do not require tuition fees; while private higher education demands a contribution from the student. Private university fees can range dramatically and tend to differ by location and course.[89] To help with the cost of higher education, the University for All Program (ProUni) was created in 2004, and introduced scholarships; those institutions that subscribe to this program receive tax breaks as an incentive. This is in addition to the fund for Student Financing of Higher Education (FIES), a program organised by the Ministry of Education to fund undergraduate students.

Table 8 illustrates expenditure in the form of proportion of Gross National Income. Expenditure on education has hovered between the 3% and 5% region, but has been slowly rising. A major change over the period has been the increase in expenditure in secondary level education, as opposed to primary level. Tertiary level expenditure is around a fifth, but declining over time: Table 9 illustrates how Brazil's tertiary costs have historically been comparatively high.

Furthermore, when considering the expenditure on each education level, and the quantity of enrolments per education level, it is possible to understand the investment made per enrolment. Table 10 illustrates the contrasting levels of investment for various students. What soon becomes obvious is the gap between the investment per student at tertiary and all other levels. The average investment per student at all levels of education except tertiary from 2000-10 was R$1,721, compared to R$12,130 at tertiary level.

[86] Schwartzman, 'The challenges', p. 25.
[87] Gadotti, 'Contemporary Brazilian', p. 129.
[88] Braga, Primo, and Paulo, 'Private education', p. 486.
[89] The 2003 monthly course fees in Rio De Janerio state ranged from R$199 for Pedagogy to R$1,242 for Medicine.

Table 8. Expenditure on education as % of GNI, % of expenditure on education by level 1989-2006

		Year			
		1989	**1995**	**2000**	**2006**
Current expenditure on education as % of GNI		4.49	4.32	3.88	4.79
Percentage distribution of public current expenditure on education by level	**Pre-primary**	n.a.	5.09	8.39	7.28
	Primary	49.42	48.39	30.26	31.73
	Secondary	6.97	20.33	38.70	44.26
	Tertiary	25.93	26.19	22.64	16.73
	Not allocated by level	17.68	0.00	0.00	0.00

Note: n.a. = no data available
Source: UNESCO Institute for Statistics online database, http://www.uis.unesco.org/Pages/default.aspx?SPSLanguage=EN, retrieved 24th August, 2012.

Table 9. Unit Cost in Public Institutions (In US dollars)

Country	Unit Cost	Year
Japan	5,968	1985
UK		
Universities	12,950	1986
Polytechnics	6,160	1986
United States	8,724	1984
Philippines	3,492	1985
Spain	906	1985
Australia	6,126	1987
Brazil - using official exchange rate	7,930	1988
Brazil - using parallel exchange rate	4,760	1988
Venezuela	1,625	1989
Chile	1,030	1990

Sources: OECD (1989); James (1989); Paul and Wolyneck (1990) in Birdsall and Sabot, 'Opportunity foregone', p. 537.

Table 10. Public Investment Direct estimate of education per student by level of education in nominal (R$1,00) 2000-10.

	Level of Education						
	Educação Básica	Educação Infantil	Ensino Fundamental 1st- 4th séries	Ensino Fundamental 5th-8th séries	Ensino Médio	Ensino Superior	All levels
2000	807.58	923.59	794.40	810.65	770.30	8927.38	970.28
2001	901.71	898.00	845.40	950.94	943.73	9500.09	1081.71
2002	1005.32	951.56	1110.91	1031.63	747.46	10135.06	1213.93
2003	1116.02	1196.91	1176.20	1117.41	937.76	9705.91	1329.02
2004	1283.94	1372.37	1358.73	1373.60	939.21	10572.50	1512.93
2005	1440.00	1372.87	1606.62	1529.94	1004.12	11363.35	1699.88
2006	1772.82	1532.60	1824.98	2003.91	1417.01	11820.26	2041.73
2007	2163.22	1954.06	2273.52	2368.70	1734.64	13088.55	2466.61
2008	2632.07	2206.45	2760.88	2945.80	2122.12	14762.58	2995.33
2009	2972.34	2276.33	3203.63	3341.71	2336.14	15582.10	3381.24
2010	3579.90	2942.45	3858.89	3905.14	2960.47	17971.91	4087.21

Source: INEP, http://portal.inep.gov.br/estatisticas-gastoseducacao-despesas_publicas-p.a._precos.htm, retrieved 24th August, 2012.

3.2 Demand-side of Education

3.2.1 Demographics

In 1991, the population of Brazil stood at 146.8 million. Some 66 million of the total population were aged between 0 and 19: nearly 45% in total. By 2010, the population stood at 191 million, a 30% increase in just 19 years. However, the proportion of 0-19 year olds had decreased by 5%, and the share of the population they represent had fallen to a third. Population growth was mainly fuelled by those aged between 30 and 60.90

All things remaining constant, this change would result in a decreasing demand for education; but this is to assume that demand for education had been satisfied in the first place, and a figure of total enrolments in 1991 of 37.8 million would suggest otherwise. This population growth has mainly been caused by an increase in per capita income, an increase in health services, and medical advances during the period.91

As with other parts of Latin America, Brazil has continued to urbanise at a considerable rate. In 1991, 75.47% of the population lived in urban locations; whereas by 2010, this figure had risen to 84.36%.92 Historically, populaces have tended to remain in coastal regions; not in the harsh climate of the Amazon and surrounding areas. Even so, the increase in population has mostly occurred in the North (in states such as Pará and Amazonas), as well as the Central West (in Mato Grosso). Overall, however, the population remains concentrated in the South East (42.1% in 2010) and North East (27.8% in 2010): dominated by the states of Sao Paulo, Minas Gerais and Rio de Janeiro in the South; Bahia and Pernambuco in the North.93

The question of race has provided a further perspective for studies on the Brazilian education system; it is important to understand the race composition of the country.94 Statistical institutions in Brazil tend to categorize their most populous races as white, black, brown, or yellow: a somewhat ambiguous method. Over the period in question, race composition has tended to remain relatively stable. In 1991, the largest racial groups were white (51.56%), brown (42.45%), and black (5%). In 2010, only the category of brown had experienced a decrease (9%).[95]

3.2.2 Households

The experience of households is also a factor influencing demand for education. A main theme of this paper analyses how persistent income inequality is influenced by the

[90] See table 11.
[91] Bethell, *Latin America,* p. 13.
[92] See table 12.
[93] See table 12.
[94] Guimarães, 'Entrance into'.
[95] See table 13.

education system; but this relationship could also be cyclical. Distribution of income may also affect demand for education: in the sense that if income distribution is not shared out evenly, and instead, skewed towards the top, private education may only be affordable for households with a certain level of income.

If household income is so low that the opportunity cost of education becomes so high in terms of lost potential income from labour wages, demand for education will inevitably fall. Alternatively, if household income rises, the opportunity cost of education falls.[96] An increase in household income also increases ability to pay for private, rather than public education: assuming that the quality of private education is worth any additional cost.

To illustrate the movements in household income and income distribution, Figure 6 shows both the average household monthly income and each average household monthly income per income decile. Average household monthly income has risen by a quarter, ceteris paribus; this would have led to an increase in demand for education. All deciles have increased; but the lower half of the scale has increased more rapidly than the upper one. However, the difference between incomes in the highest and lowest tenth of earners has increased, and remains at a rate of almost forty five times higher.

A policy of a compulsory minimum wage may also affect household income and therefore demand for education. A minimum wage is designed to set a floor price, which increases the income of the lowest paid households; it can therefore increase the capacity of low income households to opt for long term returns of education, rather than short term returns of labour wages. The minimum wage is also tied to other social programs of the Federal government: therefore, an increase in its level can result in a general increase in social assistance. That said, if the minimum wage is set too high, incentives to enter the labour market rather than education may prove overwhelming.

Figure 7 illustrates how the minimum wage has recovered from the early 1990s onwards. The inflationary period prior to *Plano Real* is evident due to the zigzag effect; but following *Plano Real*, there has been a gradual increase in the minimum wage back to the levels seen at the start of the period in question. However, in 2000, the complementary law 103 allowed states to set a minimum monthly salary higher than the federal level; the data presented therefore takes the highest rate of minimum monthly salary. During the period under analysis, the average monthly minimum wage was R$367: which is around the level of income of the 6th tenth of household income distribution.

[96] Child labour is prohibited under the age of 14, but remains prevalent.

3.3 Empirical UNICAMP Vestibular Data 1987-2010

3.3.1 UNICAMP and the Vestibular

Universidade Estadual de Campinas (UNICAMP) is a state-maintained public university, located in Brazil's most populous state, which also currently has the third highest average household income per capita. It was established in 1966, and has rapidly become one of Brazil's most prestigious universities. In 2012, the Times Higher Education World University Rankings placed UNICAMP at between 276 and 300: this may seem low by international comparison, but it was one of only three South American universities considered in the rankings.[97] The Academic Ranking of World Universities also placed UNICAMP second in Brazil in 2010.[98] UNCAMP's admissions range from graduate to PhD candidates; while its programmes range from Computer Engineering to Medicine, with notable alumni such as Paulo Renato de Souza, former Minister of Education. Admission into UNICAMP is gained by completing the *vestibular*.

These are examinations which determine who enters higher education. From 1961 until 1996, entrance examinations were required by law; but in December 1996, Law No. 9394: Law of Guidelines and Bases of National Education (LDB) established that it was the responsibility of individual institutions to decide on entrance conditions. The law was aimed at tackling unequal opportunities of higher education: though many prestigious universities continued to use the *vestibular* system. All *vestibular* exams must comply with the general guidelines of the *Conselho Nacional de Educação* (National Education Council); and since 1995, the Higher Education Council. The CNE was created after the 1996 National Education Law (*Lei de Diretrizes e Bases* (LDB)), after it was thought that its predecessor, the Federal Council of Education, had become too closely aligned with private business interests. The new education laws also allow more autonomy to education institutions.[99]

Once a student has successfully graduated from ensino médio, they are free to enter the vestibular. However, some students may choose to undertake a course (cursinho) which helps prepare them for the actual examination. Students who failed to gain entrance through this system may retake the examination on future occasions: in practice, this means that it may take many students more than one attempt at a *vestibular* in order to gain admission. Examinations tend to be over-subscribed: leading to a high degree of competition between students.

The ENEM, first implemented in 1998, has also become a tool with which to determine entrance to higher education in more recent times. Some higher education institutions, including UNICAMP since 1999, use ENEM results to credit students' entrance

[97] Times Higher Education, 'Top South American Universities 2011-2012'. http://www.timeshighereducation.co.uk/world-university-rankings/2011-2012/south-america.html, retrieved 24th August, 2012.
[98] Academic Ranking of World Universities, 'Academic Ranking of World Universities – 2010, Brazil', http://www.arwu.org/Country2010Main.jsp?param=Brazil, retrieved 24th August, 2012.
[99] World Bank, '*Higher education*', p. 16.

examination scores, the influence of the ENEM results has been steadily increasing. UNICAMP's annual entrance examinations are administered by the Permanent Commission for Vestibular (COMVEST), and considered to be amongst the most demanding around.

A *vestibular* consists of examinations on 3-5 subjects, including general knowledge. COMVEST structure their exams in two stages: the first is a multiple choice and essay exam, while the second is solely essay-based. The first stage is held all over the country in various cities, which helps reduce expenses for students. The second is held in UNICAMP itself. After the first stage, depending on results, applicants can be rejected and eliminated from taking part in the second. An entrance fee is also payable for most *vestibulars*.[100]

In UNICAMP, an Affirmative Action and Social Inclusion Programme (PAAIS) began in 2004. It was one of the first universities to introduce such measures.[101] The programme was designed to help publically educated students, and develop a broader ethnic and cultural diversity. It automatically allocates qualifying applicants credits to their *vestibular* results. Additionally, low income household and public education students are eligible for registration discounts or even waivers.[102] In 2001, some higher education institutions began to introduce quotas. Left to individual universities to construct, the debate has centred upon the best, most effective form of affirmative action – whether based on race or socio-economic factors. UNICAMP has yet to introduce any quotas.

3.3.2 Socio-Economic Profiles

As part of the vestibular registration, applicants are required to complete a socio-economic questionnaire form along with their application. Potential students are then identified, so their progress can be tracked. The questionnaire is designed to be completed by the candidate, and is therefore in parts subjective and open to a margin of error. Answers regarding what type of school the student had previously attended are less likely to result in errors contrasted with others on the nature of household income. However, as with most questionnaires on income, it appears that students have little incentive to exaggerate answers; far more to understate them in the hope of receiving financial assistance.

By extracting the data from COMVEST for the period between 1987 and 2010, it is possible to identify factors which were common of students enrolling into UNICAMP.[103]

[100] Registration fees for UNICAMP stood at R$115 in 2010.
[101] UNICAMP, 'Deliberação CONSU-A-012/2004', http://www.pg.unicamp.br/deliberacoes_consu.php?ano=2004&pagina=1, retrieved 24th August, 2012.
[102] In 2010, the fee waiver was for students who were either unemployed, or receiving less than two minimum wages per month.
[103] See tables 15-29.

First, between 1987 and 2010, 982,582 individuals applied for a place at UNICAMP, but only 55,923 were enrolled: a ratio of 17.6 subscribers per place. 70.7% of subscribers were aged between 17 and 19, although older age cohorts had better enrolment success rates. Linked to this is that applicants who had previously taken a *vestibular* were more successful that those who had not; nearly three quarters of subscribers will fail to be enrolled at the first time of asking.

Observing the level of *ensino fundamental*, only 35% of subscribers attended only public school; and only 5% of these students were successful in the vestibular. Conversely, 63.3% of subscribers had attended some form of private education, and 6% of them were successfully enrolled. Moreover, 1 in 16.3 subscribers who attended only private education were successfully enrolled, compared to 1 in 19.7 who attended only public education. During the period in question, the number of subscribers who attended only private education increased from 22% to 58%, whereas the number of subscribers who attended only public education decreased from 55% to 25%.

Ensino médio demonstrates a similar divide. 29% of subscribers attended only a public school, with 5.9% passing the *vestibular*; whereas 69% of subscribers attended some form of private school, and 5.6% of these students passed the *vestibular*. The number of subscribers who had attended only private schools increased from 45% to 68%, whereas the number of subscribers to have attended only public schools decreased from 39% to 25%.

Another key factor in the process appears to be whether a student undertakes a *cursinho* (pre-vestibular course). During the period analysed, 56% of subscribers and 61% of enrolled students attended a pre-vestibular course. In other words, 1 in 16.1 subscribers who attended a pre-university preparatory course were successfully enrolled, compared with 1 in 19.9 who did not.

One of the most revealing findings from the questionnaires suggesting a possible link to income inequality was that regarding family income in relation to the minimum salary.[104] The family income of subscribers appears to be evenly spread between the different ranges of minimum salaries. Students who come from families with an income of less than 5 times the minimum monthly salary had similar success rates to those from higher income families. That said though, students from families with an income of the minimum monthly salary or less had a 1 in 23 success rate; compared to 1 in 17 for families with an income of between 10 and 40 times the monthly minimum salary. However, 58% of subscribers and 59% of students come from families with more than ten times the minimum monthly salary.

Using a social mobility perspective, 41% of subscribers and 42% of enrolled student fathers were professionals, managers, and directors or owners of medium-sized enterprises. Subscribers whose father's occupation was in the category of senior, political, administrative o owners of a large company were 26% more successful in gaining

[104] 1994 and 1995 have had to be omitted because their categories could not be aggregated with the whole period.

enrolment than those whose father was employed in a routine, non-manual occupation. Disturbingly, 45% of subscribers and 48% of enrolled students' fathers were educated to a level of graduate or higher: with 1 in 16 subscribers whose father had completed higher education or further successfully enrolled, compared with 1 in 25 who did not attend school.

The next section will discuss how much can be interpreted from the findings of the socio-economic profiles, as well as the demand and supply side of education during the period under analysis; and how they have contributed to persistent income inequalities.

4.0 A Mechanism of Inequality

Combining the information presented on the Brazilian education system between 1987 and 2010, it is possible to see how the system has contributed to persistent inequality in Brazil. Using the data regarding the number of schools across Brazil, it is possible to estimate that having been around 245,061 establishments in 1987, this rose to some 281,855 by 2010: a 15% expansion in school establishments.[105] Despite this, the supply of education as measured by enrolments managed to expand by an estimated 43% over the same period, which does suggest a decrease in quality, through factors such as class sizes.[106]

In 1991, there were 37.8 million enrolments from the 66 million 0-19 year olds, rising to 49.5 million enrolments from 62.9 million citizens of school age by 2010. Additionally, with average household incomes rising by 25%, families are now less likely to send their younger members in search of labour wages and more likely to make long term educational investments. This suggests that, while progress has been slow over the period, there was the potential for an excess demand for education, which in turn can result in excess demand for skilled workers, resulting in a high skill premium.

For Jan Tinbergen, Brazil's education system had lost the race against technological advances. With the most highly rated universities producing the most skilled labour, public universities in Brazil are more highly regarded than the alternative private universities.[107] Therefore, how the skill premium is gained due to educational outcomes in relation to household incomes can affect the income inequality of a nation; the UNICAMP data suggests that there is an advantage in favour of high income households in gaining the education necessary to achieve future skill premiums.

Although UNICAMP was one of the earliest public universities to introduce progressive measures and target a more inclusive strategy into its enrolment system, and

[105] The only estimated element of the 1987 figure is the *Educação Infantil*.
[106] Again only the 1987 *Educação Infantil* element of the enrolment figure is an estimate.
[107] The relation between prestige and high income could be strengthened with a comparative study of graduate income from different higher education establishments.

although there have been encouraging signs over the period as a whole, there is a noticeable disadvantage for potential students of low income households. Given that the majority of UNICAMP students have attended some form of private education, this suggests that households that cannot afford this for their children are disadvantaged.

Moreover, such has been the increasing prevalence of the pre-*vestibular* course over recent years, and its apparent effectiveness in helping students pass the entrance examination, these courses constitute a potential marginal cost in any attempt to enrol in a public university; this will clearly be of greater proportional cost to low income households. A World Bank case study into Brazilian higher education estimated that the cost of pre-*vestibular* courses is a minimum of two to three times the minimum monthly salary, although they vary according to quality.[108]

Finally, nearly three quarters of subscribers will fail to be enrolled first time; this increases the cost disproportionately on low income households, who find it more difficult to support the potential student during *vestibular* attempts. These three barriers to low income households are reflected in the findings that 62% of subscribers and 65% of enrolments are from families in the 9th and 10th income deciles of Brazil. With opportunities to attain skill premiums appearing to favour high income households, the potential to create income inequalities already existed; but the picture becomes more alarming when public expenditure is considered.

It is observable that the public financing of the Brazilian education system has tended to expand at secondary level, while the private sector has helped expand higher education. Households can of course opt to attend private universities; but low-income households incur far higher proportional costs. In general, public expenditure on tertiary education was high: high as a percentage of educational expenditure; high in the sense of per unit cost relative to other nations; and 12 times higher per student than at other levels. With higher education accounting for an estimated 2.4% of all public enrolments from 1987-2010, it has on average amounted to 22.87% of public education expenditure.

Given the potential of a high skill premium, relatively high public expenditure per student at tertiary level, and assuming that the observations regarding the socio-economic profiles of UNICAMP students apply to the majority of public universities, there are all the ingredients of a regressive education system. The regressive label that this dissertation assigns to the education system is in line with Skidmore's comments that it is a 'significant distributional bonanza'.[109] The persistent element of the income inequality that the education system helps maintain is apparent when considering that the applicants of UNICAMP appear to be from households with skilled workers and parents educated to university level: a strong looping effect is evident. Studies on the University of São Paolo (USP) have concluded similar findings: which strengthens the possibility that unequal

[108]World Bank, '*Higher education*', p. 15.
[109] Skidmore, '*Brazil's persistent*', p. 137.

opportunities in public higher education can be identified nationwide, not just at UNICAMP.[110]

The argument that a generational looping effect is evident is further strengthened by the findings of a 1964 *vestibular* in the state of Guanabara (now Rio de Janeiro), which shows that 69.8% of candidates attended private school.[111] The same study, using a social class framework based on the father's occupation, concludes that 55.9% of candidates were in the top two social classes; as opposed to only 7.5% in the bottom class.[112] The view that the quality of secondary private education is superior to its public counterpart is strengthened by studies into the 2002 ENEM results, which found that private students outperformed public ones.[113]

The findings presented in this case study concentrate on enrolments and the opportunities of higher education; but similar data has been presented from the perspective of the success rates of students in graduating, thus strengthening the argument of unequal educational asset distribution. Using the *Provão* data of 1998 for all types of higher education, it is possible to conclude that only 5% of graduates come from 39.5% of the lowest income households; compared to 10% coming from the top 1.5% of highest income households.[114]

This dissertation has also analysed inequality through an income or even a Marxist tradition of class perspective, but the data could potentially reveal influences regarding race and gender, which unfortunately entails considerably more breadth than the limitations of this research allow.

It appears that, during the period in question, the Brazilian government has concentrated on increasing education at primary and secondary levels, with the objective of increasing literacy rates across the nation; while leaving the private sector to expand the supply of higher education and maintaining their free-from-tuition public universities. By doing so, they have helped create a system which results in publically educated secondary students having to pay for higher education in private universities, because the quality of education they received at public secondary school leaves them at a clear disadvantage in terms of being successful in passing the public university entrance examinations.

Various levels of governance have sought to introduce measures to correct the disadvantage faced by publically educated students; but a criticism of such measures is that it simply retracts the accountability of public secondary schools in delivering a high quality education. The data suggests that this perhaps is indeed the case: as the number of subscribers who attended only private schools increased, while the converse fell. This research is not based around a public v private debate: it simply echoes the sentiments of

[110] Guimarães, 'Entrance into'.
[111] Franco-da-Cunha, '*Vestibular na*', p. 142.
[112] Ibid., p. 165.
[113] Castro and Tiezzi, 'The reform', p. 109.
[114] World Bank, '*Higher education*', p. 45.

a World Bank paper, which concludes that public services should be made more 'private' and efficient; and private services should become more publically focused.[115]

The findings of this dissertation do not contribute to or strengthen any of the arguments made as to why or when Latin America became highly unequal in terms of income. It does add further value to the observations made by various theorists that educational asset distribution being unequal is one of the key outcomes; but it does not side with inequality arguments relating to colonisation or globalisation representing the starting point for such an outcome.

Scholars and policymakers who have advocated an expansion of education as a means with which to correct income inequality have linked education expansion with a fall in skill premiums.[116] However, they appear to concentrate merely on the supply of education; and neglect the education system as a whole. Expanding education could indeed lower the skill premium of labour educated to secondary level, but effects on income inequality may be limited if newly secondary educated students from low income households cannot compete with students from high income households. If the higher education system is tilted in favour of high income households and financed regressively, the impact of educational expansion will be diluted.

Tackling inequalities through education is not as simple as just increasing supply, but also about ensuring a level playing field to all households regardless of supply.[117] It is not practical to replicate policy prescriptions which have been deemed a success in countries such as Colombia, Tanzania, and Kenya, while these prescriptions negate specific education system architecture. Therefore, there is also a flipside to the suggestion that increased education represents a solution to inequalities. Behrman et al. have recommended that any further spending on tertiary education may have a negative contribution towards intergenerational mobility.[118] The findings are also in line with the conclusions of Goñi et al, who argue that Latin American and Western European inequality are at relatively similar levels before taxes and transfers; but Western Europe's taxes and transfers reduce inequalities by 15%, yet a figure of just 2% in Latin America.[119] The architecture of the education system is Brazil could provide Goñi et al. with a form of redistribution which is actually perpetuating inequalities.

With free tuition universities becoming common during the Second Republic, it appears that whenever reform of the status quo on tuition is debated, there is a collective dismissal from both students and teaching unions; and any potential reform is viewed as toxic.[120] This type of educational change has occurred in other countries: England, for

[115] Wolff and Castro, '*Public or private*', p. 21.
[116] Barros, Carvalho, Franco, and Mendonça, '*Markets, the state*', p. 48; Gasparini and Lustig, 'The rise', p. 705.
[117] It could also be suggested that the system be tilted in favour of low income households if correcting inequalities are a priority.
[118] Behrman, Birdsall, and Székely, 'Intergenerational mobility', p. 143.
[119] Goñi, López, and Servén, '*Fiscal redistribution*', p.1566.
[120] Skidmore, '*Brazil's persistent*', p. 137.

example, also had free tuition public universities before the Teaching and Higher Education Act in 1998, which introduced capped tuition fees for all universities based on the ability to pay, although England had not endured such historic extremes of inequality during the previous 50 years.[121] Chile and other South American countries charge tuition fees using loans, regardless of whether the higher education establishment is public or private; indeed, more and more of Chile's higher education is performance related.

Moreover, in South East Asia, economies such as South Korea also expanded education between 1976 and 1986; but at the same time, the importance of quality of education was stressed, unlike in much of Latin America. In contrast, South East Asian education expansion did not mean that investment per student fell; on the contrary, while the supply of books and facilities ensured that repetition and dropout rates remained low, while test scores increased.[122] By maintaining quality education, South Korea was able to increase its labour supply of highly skilled workers, reduce the skill premium and reduce income inequality.[123] Interestingly, this mainly occurred during a period of authoritarian rule.

Democratisation is sometimes hailed as the ultimate means of equality and accountability - yet the question of educational equality at higher education level has yet to be tackled. It would be interesting to establish exactly what the barriers to reform amount to; and why, given its many supposed potential benefits, democratic institutions have yet to undertake it. Does the provision of public universities provide a club good to a particular constituency or is there something of an urban bias in existence? These are interesting questions for further research.

5.0 Conclusion

Internationally, Brazil is renowned for its contrasts: from the beachside hotels of Rio de Janeiro to the harsh cramped conditions of the *favelas* on the hillsides above the golden beaches. Behind such extremes lies a history of an unequal society. The large gap in incomes within Brazil has remained almost unchanged for at least half a century.[124] As higher education became less about technological advancement and more about skilled labour, its role in income distribution intensified. By identifying the following, this paper has demonstrated how the education system between 1987 and 2010 effectively became a mechanism which allowed high income inequality to persist:

Fewer than 35% of UNICAMP students attended only public education.

[121] The tuition fees were introduced for extra funding for education rather than equality arguments, and England's most prestigious institutions (Oxford & Cambridge) have regularly been criticised for lack of inclusivity.
[122] Birdsall and Jaspersen, '*Pathways to growth*', p. 96.
[123] Ibid., p. 106.
[124] Using the Prados de la Escosura data.

61% of students enrolled had attended a pre-vestibular course.

Nearly 75% of subscribers will fail to be enrolled at the first time of asking.

It is estimated that over 60% of students are from families in the 9th and 10th income deciles.

The education system allows high income inequality to persist by allocating the best educational assets, regressively through state funding, towards high income households, thus enabling these households to gain access to employment with high skill premiums. Lower income households, meanwhile, are less able to pay for private education; and find themselves left with the alternative option of having to pay for their higher education privately following a publically funded secondary education. With the design of the education system remaining fundamentally the same, there is the prospect of a looping effect of public graduates being able to fund their children towards being public graduates: thus a self-fulfilling prophecy is created.

Despite the numerous measures introduced into the education system between 1987 and 2010 at both federal and individual university level, the problem of unequal educational opportunities persists. The beginning of the period observed by this dissertation was marked by the re-democratisation of Brazil; but as yet, this has fail to cumulate into the higher educational reform needed to remedy the problem of persistent income inequality. Instead, Brazil implemented educational expansion publically at secondary level, and privately at tertiary levels.

It is always difficult to dispute the need for public investment in higher education, such is its obvious public and societal importance; but the state must ensure that any such investment is as egalitarian as possible. Any policy prescription for the expansion of education in order to tackle inequalities must pay heed to a nation's individual structural characteristics. The findings presented pose serious questions regarding the capability of public secondary education to produce students capable of competing for a place in public higher education; and above all, suggest a need for what Birdsall and Székely refer to as policies of 'Bootstraps not Band-Aids'.[125] The findings also pose a question as to the fairness of free public higher education, while the problem of unequal opportunities still obtains.

[125] Birdsall and Székely, 'Bootstraps, not Band-Aids', p. 70.

Bibliography

Abreu, P., Marcelo, D. and Werneck, F. R. L., 'The Brazilian economy, 1994-2004: an interim assessment', in Bethell, L., ed., *Brazil since 1930* (Cambridge, 2008).

Acemoglu, D., *Patterns of skill premia* (Cambridge, MA, National Bureau of Economic Research, 1999).

Acemoglu, D., 'Technical change, inequality, and the labor market', *Journal of Economic Literature*, 40(1) (2002), pp. 7-72.

Acemoglu, D., Johnson, S. and Robinson, J. A., 'The colonial origins of comparative development: an empirical investigation', *National Bureau of Economic Research Working Paper Series*, 7771 (2000).

Alesina, A. and Rodrik, D., 'Distributive politics and economic growth', *Quarterly Journal of Economics*, 109(2) (1994), pp. 465-490.

Andersen, L. E., *Social mobility in Latin America: links with adolescent schooling* (Washington, D.C., Inter-American Development Bank, Research Dept, Latin American Research Network, 2001).

Ashenfelter, O. and Krueger, A., 'Estimates of the economic return to schooling from a new sample of twins', *American Economic Review*, 84(5) (1994), pp. 1157-1173.

Barros, R., Carvalho, M. D., Franco, S. and Mendonça, R., 'Markets, the state and the dynamics of inequality: Brazil's case study', *United Nations Development Programme*, 79 (2009).

Barros, R. P. D., and Mendonça, R. S. P. D.,, *Os Determinantes Da Desigualdade No Brasil*. (Brasília, DF, IPEA, 1995).

Barros, R. P. D., Mendonça, R. S. P. D. and Henriques, R. 'Education and equitable economic development', in Rocha-Miranda, C. E., ed., *Transition to global sustainability* (Rio de Janeiro, Academia Brasileira de Ciências, 2000).

Becker, G. S., *Human Capital: A theoretical and empirical analysis, with special reference to education*, (Chicago, 1975).

Becker, G. S. and Chiswick, B. R., 'Education and the distribution of earnings', *American Economic Review*, 56(1/2) (1966), pp. 358-369.

Behrman, J. R., Birdsall, N. and Székely, M., 'Intergenerational mobility in Latin America: deeper markets and better schools make a difference', in Birdsall, N. and Graham, C., eds., *New markets, new opportunities? Economic and social mobility in a changing world* (Washington, D.C., 2000).

Bértola, L., 'Institutions and the historical roots of Latin American divergence, *CEPR Discussion Paper,* 7808.

Bértola, L. and Williamson, G. J., 'Globalization in Latin America before 1940', in Bulmer-Thomas, V., Coatsworth, H. J. and Conde, C. S. R., eds., *The long twentieth century* (Cambridge, 2006).

Bethell, L., *Latin America since 1930: economy, society and politics* (Cambridge, 1994).

Bethell, L. and Nicolau, J., 'Politics in Brazil, 1985-2002', in Bethell, L., ed., *The Cambridge history of Latin America, 9: Brazil Since 1930* (Cambridge, 2008).

Birdsall, N. and Jaspersen, F. Z., *Pathways to growth: comparing East Asia and Latin America* (Washington, D.C., Inter-American Development Bank, 1997).

Birdsall, N. and Sabot, R. H., *Opportunity foregone: education in Brazil* (Washington, D.C.; Baltimore, Md.: Inter-American Development Bank, 1996).

Birdsall, N. and Székely, M., 'Bootstraps, not band-aids: poverty, equity, and social policy', in Godard, K., Pedro-Pablo and Williamson, J., eds., *After the Washington consensus: restarting growth and reform in Latin America* (Washington, D.C., Institute for International Economics, 2003).

Borjas, G. J., *Labor Economics* (Boston, 2010).

Bowman, M. J., 'The human investment revolution in economic thought', *Sociology of Education*, 39(2) (1966), pp. 111-137.

Braga, J. E., Primo, C. A. and Paulo, D. T. A. D. A., 'Private education and public regulation', in Birdsall, N. and Sabot, R. H., eds., *Opportunity foregone: education in Brazil* (Washington, D.C., Inter-American Development Bank, 1996).

Burton-Jones, A. and Spender, J. C., *The Oxford handbook of human capital* (Oxford, 2011).

Card, D., 'The causal effect of education on earnings', in Orley, C. A. and David, C. A., eds., *Handbook of labor economics* (Amsterdam, 1999), pp. 1801-1863.

Castro M. H. D. and Tiezzi, S., 'The reform of secondary education and the implementation of ENEM in Brazil', in Brock, C. and Schwartzman, S., eds., *The Challenges of Education in Brazil* (Oxford, 2004).

Coatsworth, J. H., 'Structures, endowments and institutions in the economic history of Latin America', *Latin American Research Review*, 40(3) (2005), pp. 126-144.

De-Ferranti, D., Perry, G., Ferreira, F. H. G. and Walton, M., *Inequality in Latin America: breaking with history?* (Washington, D.C., World Bank, Latin American and Caribbean Studies, 2004).

Deininger, K., 'Making negotiated land reform work: initial experience from Colombia, Brazil and South Africa', *World Development*, 27(4) (1999), pp. 651-72.

Engerman, S. L. and Sokoloff, K. L., 'Factor endowments, inequality, and paths of development among new world economies', *National Bureau of Economic Research Working Paper Series on Historical Factors in Long Run Growth*, 66 (1994).

Engerman, S. L. and Sokoloff, K. L., 'Factor endowments, institutions, and differential paths of growth among new world economies: a view from economic historians of the United States', *National Bureau of Economic Research Working Paper Series*, 9259 (2002).

Fajnzylber, P., Lederman, D. and Loayza, N., 'Inequality and violent crime', *Journal of Law and Economics,* 45(1) (2002), pp. 1-39.

Ferreira, F. H. G., Leite, P. G. and Ravallion, M., **'**Poverty reduction without economic growth? Explaining Brazil's poverty dynamics, 1985–2004', *Journal of Development Economics,* 93(1) (2010), pp. 20-36.

Filho, D. C., Irineu and Colistete, R. P., 'Education performance: was it all determined 100 years ago? Evidence from São Paulo, Brazil', *Munich Personal RePEc Archive Paper* (2010).

Filho, L. and Bergström, M., 'Education', in Hill, L. F., ed., *Brazil* (Berkeley, 1947).

Franco-da-Cunha, N., *Vestibular Na Guanabara* (Rio de Janeiro, Ministério da Educação e Cultura, Inst. Nacional de Estudos Pedagógicos, Centro Brasileiro de Pesquisas Educacionais, 1968).

Gadotti, M., 'Contemporary Brazilian education', in Torres, C. A. and Puiggrós, A., eds., *Latin American education: comparative perspectives* (Boulder, Colo., 1997).

Gasparini, L. and Lustig, N., 'The rise and fall of income inequality in Latin America', in Ocampo, J. A., and Ros J., eds., *The Oxford Handbook of Latin American Economics* (Oxford, 2011).

Grafe, R. and Irigoin, A., 'A stakeholder empire: the political economy of Spanish imperial rule in America', *Economic History Review*, 65(2) (2012), pp. 609-51.

Goñi, E., López, J. H. and Servén, L., 'Fiscal redistribution and income inequality in Latin America', *World Development*, 39(9) (2011), pp. 1558-1569.

Guimarães, A. S. A., 'Entrance into Prestigious Universities and the Performance of Groups That Have Been Discriminated Against on the Vestibular', in Attewell P., and Newman K. S., eds., *Growing Gaps: Educational Inequality around the World* (New York, 2010).

Instituto Brasileiro de Estatística, 'Anuario Estatistico Do Brasil', *Anuario Estatistico Do Brasil (1987-2011).*

Knight, J. B. and Sabot, R. H., 'Educational expansion and the kuznets effect', *American Economic Review*, 73(5) (1983), pp. 1132-36.

Kuznets, S., 'Economic growth and income inequality', *American Economic Review*, 45(1) (1955), pp. 1-28.

Lam, D., 'Generating extreme inequality: schooling, earnings, and intergenerational transmission of human capital in South Africa and Brazil', *PSC Research Report* (1999), pp. 99-439.

Lam, D. and Levison, D., 'Age, experience, and schooling: decomposing earnings inequality in the United States and Brazil', *Sociological Inquiry*, 62(2) (1992), pp. 220-245.

Lam, D. and Schoeni, R. F., 'Effects of family background on earnings and returns to schooling: evidence from Brazil', *Journal of Political Economy*, 101(4) (1993), pp. 710-740.

Leff, N. H., 'Economic development and regional inequality: origins of the Brazilian case', *Quarterly Journal of Economics*, 86(2) (1972), pp. 243-262.

López-Calva, L. F. and Lustig, N., *Declining inequality in Latin America: a decade of progress?* (New York, 2010).

Lourenço, F. and Bergström, M. 1947. "Education" in Hill, Lawrence F. *Brazil*. Berkeley: Univ. of California Press.

Mariscal, E. and Sokoloff, K. L., 'Schooling, suffrage, and the persistence of inequality in the Americas, 1800-1945', in Haber, S. H**.**, *Political institutions and economic growth in Latin America: essays in policy, history, and political economy* (Stanford, Calif., Stanford University, 2000).

McCowan, T., 'The growth of private higher education in Brazil: implications for equity and quality', *Journal of Education Policy*, 19(4) (2004), pp. 453-72.

Milanovic, B., Lindert, P. H. and Williamson, J. G., 'Pre-Industrial Inequality', *Economic Journal,* 121(551) (2011), pp. 255-272.

Mincer, J., 'Investment in human capital and personal income distribution', *Journal of Political Economy*, 66(4) (1958), pp. 281-302.

Mohan, R. and Sabot, R., 'Educational expansion and the inequality of pay: Colombia, 1973–78', *Oxford Bulletin of Economics and Statistics*, 50(2) (1988), pp. 175-182.

O'Neill, J., *Building better global economic BRICs* (New York, 2001)

Paiva Abreu, M. and Werneck, F.R.. "The Brazilian Economy, 1994-2004: An Interim Assessment" in L. Bethell, *Brazil since 1930.* Cambridge: Cambridge University Press (2008).

Patrinos, H. A., Ridao-Cano, C. and Sakellariou, C., Estimating the returns to education: accounting for heterogeneity in ability. *Policy, Research Working Paper No. WPS*

4040 (Washington D.C., World Bank, 2006). Available from: http://documents.worldbank.org/curated/en/2006/10/7132981/estimating-returns-education-accounting-heterogeneity-ability, retrieved 24th August, 2012.

Perry, G., *Poverty reduction and growth virtuous and vicious circles* (Washington D.C., World Bank, 2006).

Prados de la Escosura, L. "Growth, Inequality, and Poverty in Latin America: Historical Evidence, Controlled Conjectures." *Working Papers in Economic History(2005)*.

Psacharopoulos, G., and Patrinos, H. A., 'Returns to investment in education: a further update', *Education Economics*, 12(2) (2004), pp. 111-134.

Romer, P. M., 'Increasing returns and long-run growth', *Journal of Political Economy*, 94(5) (1986), pp. 1002-1037.

Reis, J. G. A. D., and Barros, R. P. D., 'Wage inequality and the distribution of education: a study of the evolution of regional differences in inequality in metropolitan Brazil', *Journal of Development Economics*, 36(1) (1991), pp. 117-143.

Sattinger, M., 'Assignment models of the distribution of earnings', *Journal of Economic Literature*, 31(2) (1993), pp. 831-880.

Schultz, T. W., 'Investment in human capital', *American Economic Review*, 51(1) (1961), pp. 1-17.

Schwartzman, S., 'Brazil: opportunity and crisis in higher education', *Higher Education*, 17(1) (1988), pp. 99-119.

Schwartzman, S., 'The challenges of education in Brazil', in Brock, C. and Schwartzman, S., eds., *The challenges of education in Brazil* (Oxford, 2004).

Sen, A., *Development as Freedom* **(**Oxford, 1999).

Siqueira, A. C. D., 'Higher education reform in Brazil: reinforcing marketization', *Journal for Critical Education Policy Studies*, 7(1) (2009), pp. 169-91.

Skidmore, T. E., 'Brazil's persistent income inequality: lessons from history', *Latin American Politics & Society*, 46(2) (2004), pp. 133-150.

Smith, A. and Sutherland, K., *An inquiry into the nature and causes of the wealth of nations: a selected edition* (Oxford, 1998).

Spence, M., 'Job market signalling', *Quarterly Journal of Economics*, 87(3) (1973), pp. 355-374.

Székely, M. and Montes, A., 'Poverty and inequality', in Bulmer-Thomas, V., Coatsworth, H. J. and Conde, C. S. R., eds., *The long twentieth century* (Cambridge, 2006).

Tinbergen, J., *Income differences: recent research* (Amsterdam, 1975).

Vajda, I., Zimbres, P. D. Q. C. and Souza, V. T. D, *Federative Republic of Brazil, Constitution, 1988: Constitutional Text of October 5, 1988, with the alterations introduced by the Constitutional Amendments No. 1/92 through 4/93 and by the Revision Constitutional Amendments No. 1 through 6/94* (Brasília, Federal Senate, Secretariat of Documentation and Information, Undersecretariat of Technical Editions, 1988).

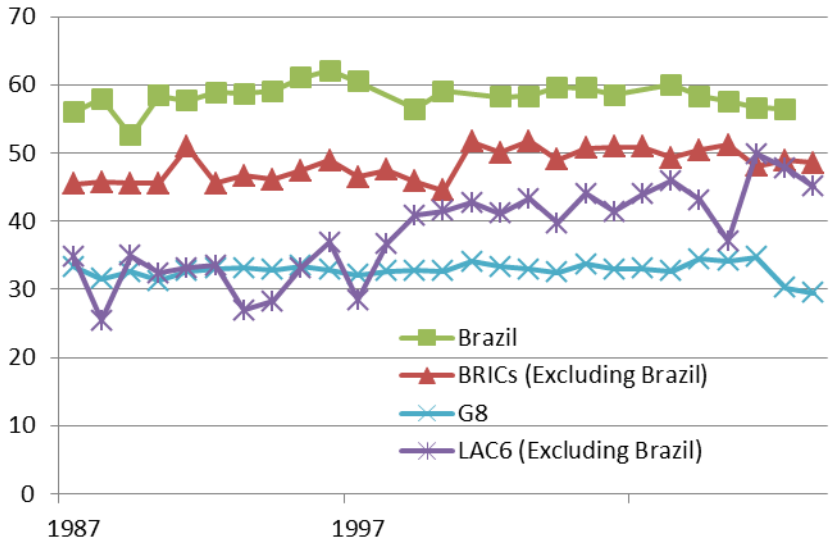
Verner, D., Education and its poverty-reducing effects: the case of Paraiba, Brazil*, World Bank Policy Research Working Paper, 3321*.

Williamson, J. G., 'Five centuries of Latin American income inequality', *Revista de Historia Económica, Second Series*, 28(Special Issue 02) (2010), pp. 227-252.

Wolff, L. and Castro, C. D. M., '*Public or private education for Latin America that is the (false) question*', (Washington, D.C., Inter-American Development Bank, Sustainable Development Dept., 2001)

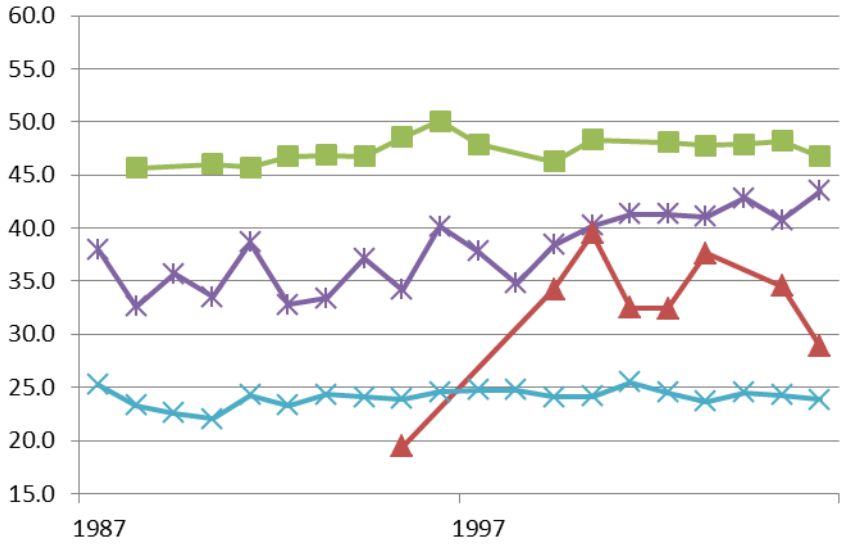
World Bank., *Higher education in Brazil: challenges and options* (Washington, D.C., World Bank, 2002).

Figure 1. G8, LAC6 (Excluding Brazil) & BRICs (Excluding Brazil) Average Gini Coefficient as % 1987-2006



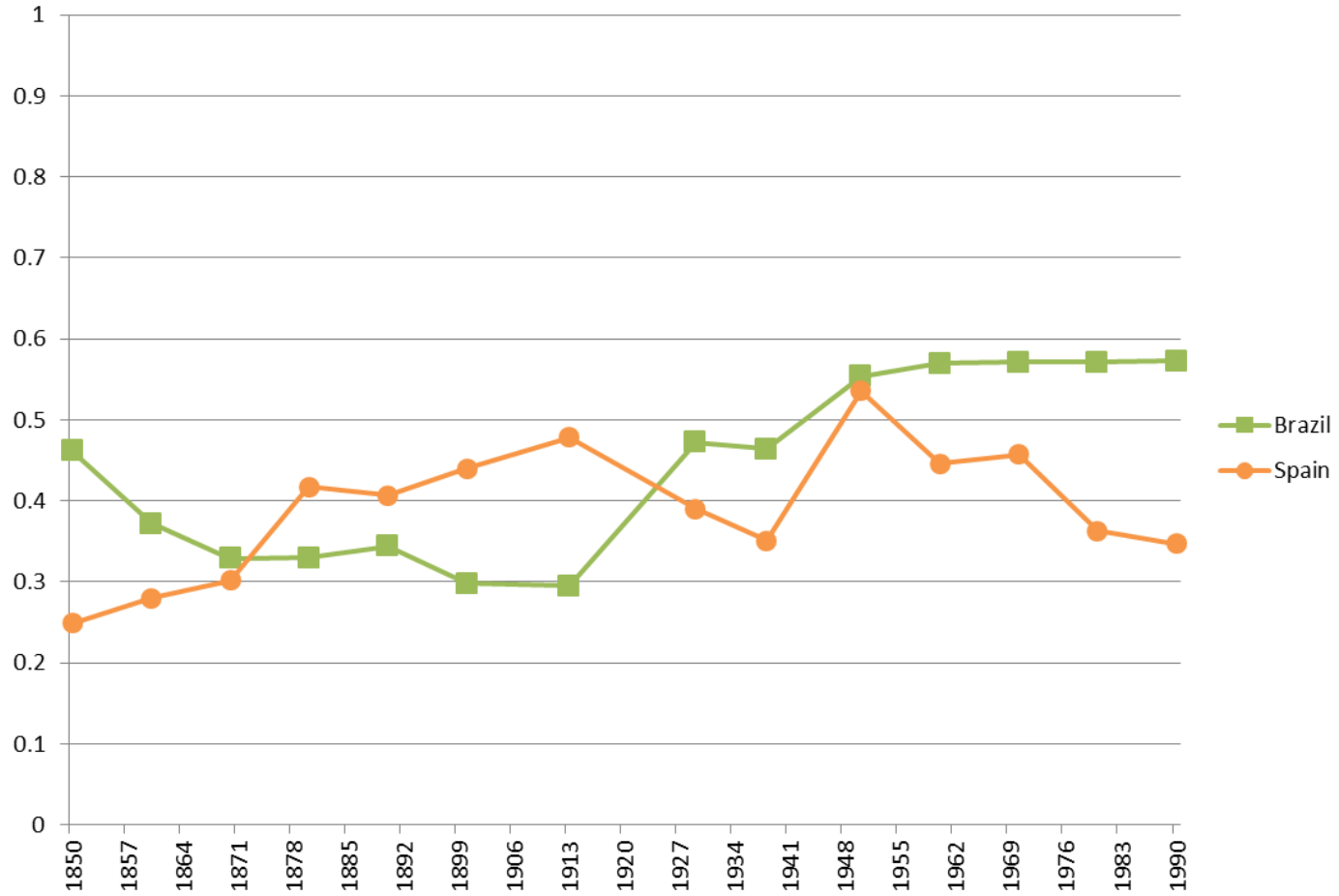
Source: See Table 1

Figure 2. G8, LAC6 (Excluding Brazil) & BRICs (Excluding Brazil) Average % of income share held by the highest decile 1987-2006



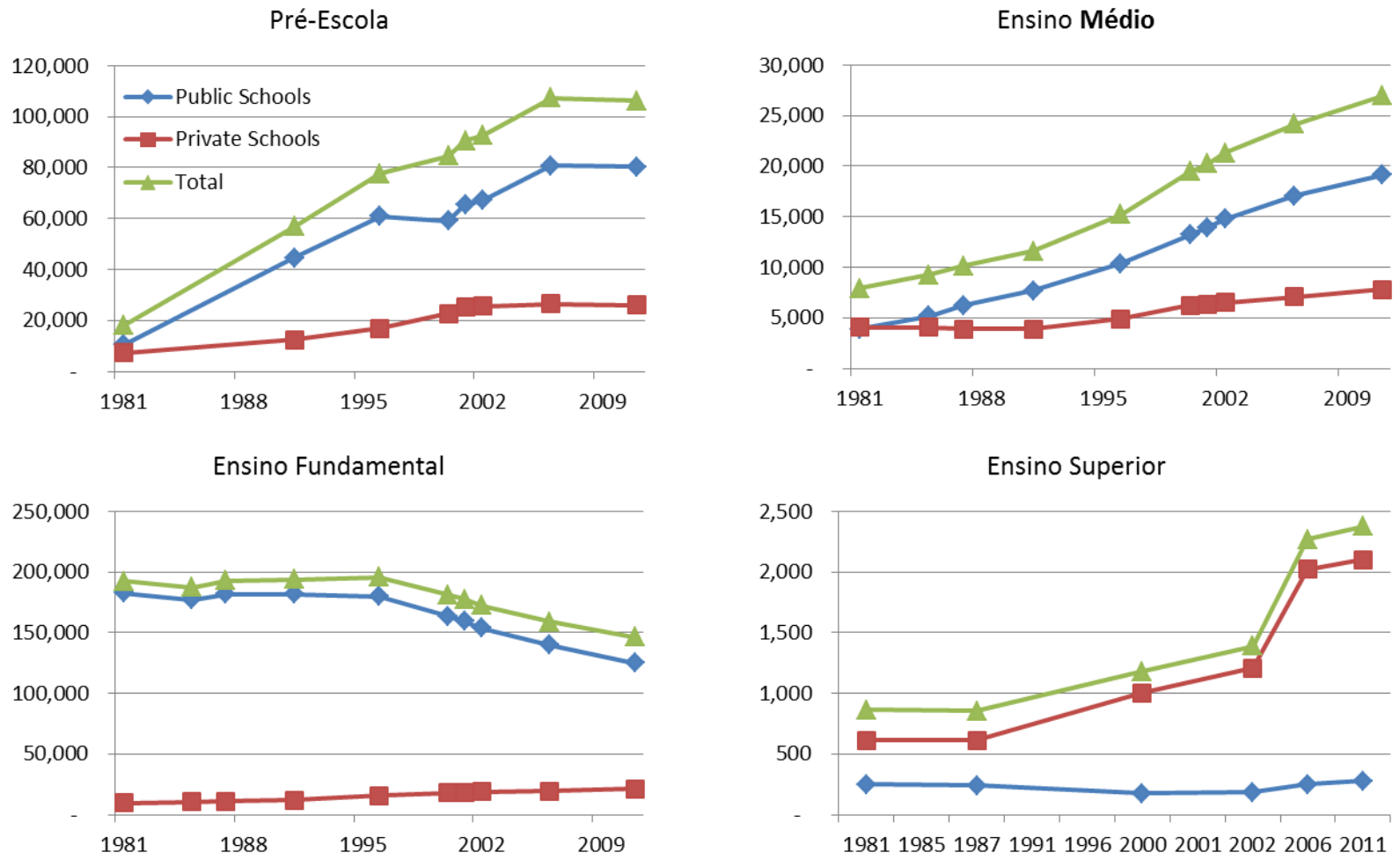
Source: See Table 2

Figure 3. 1850-1990 Income Distribution in Brazil and Spain: Gini Coefficients



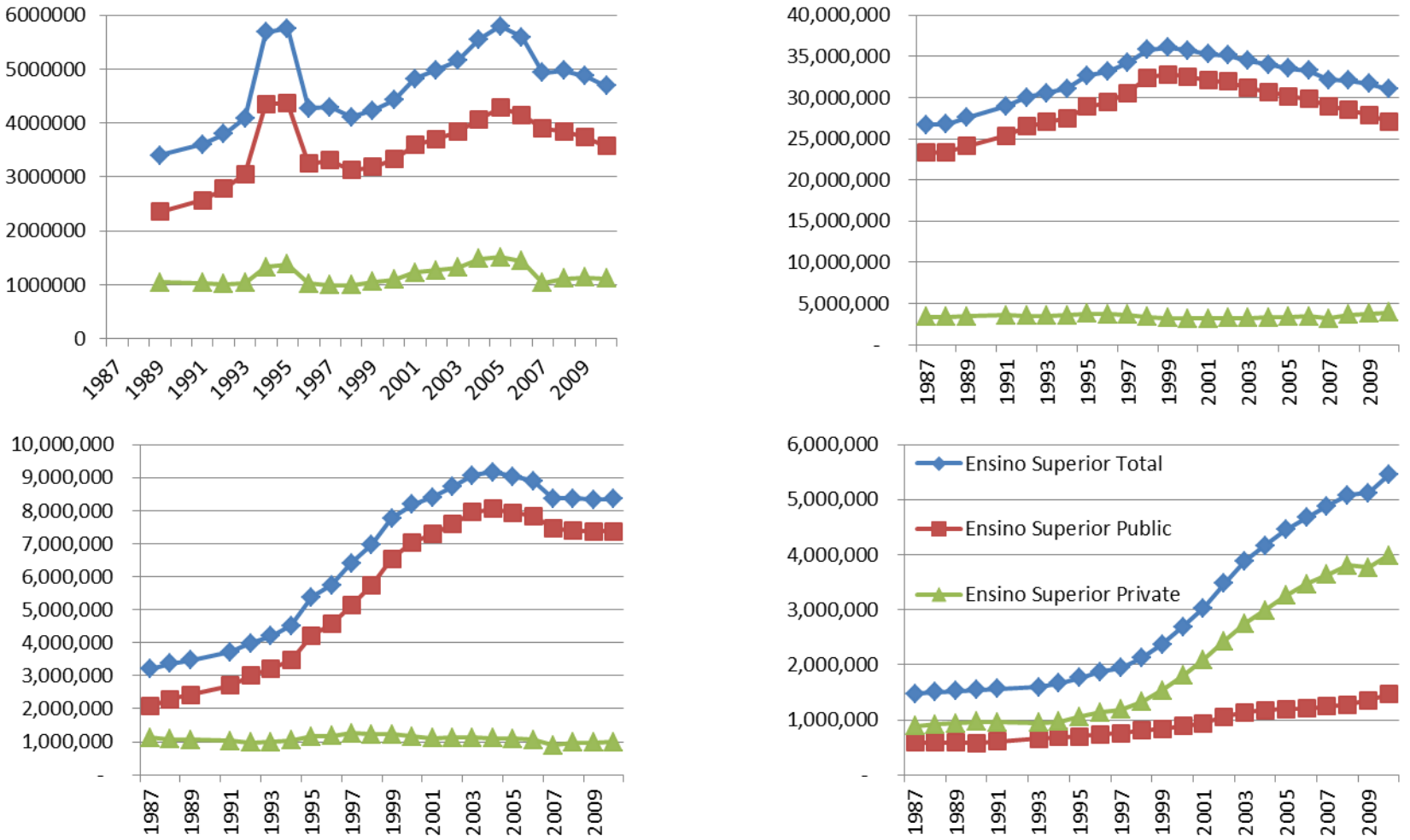
Source: Prados de la Escosura, 'Growth, Inequality', p. 39

Figure 4. Numbers of Schools by Level of Education 1981-2011



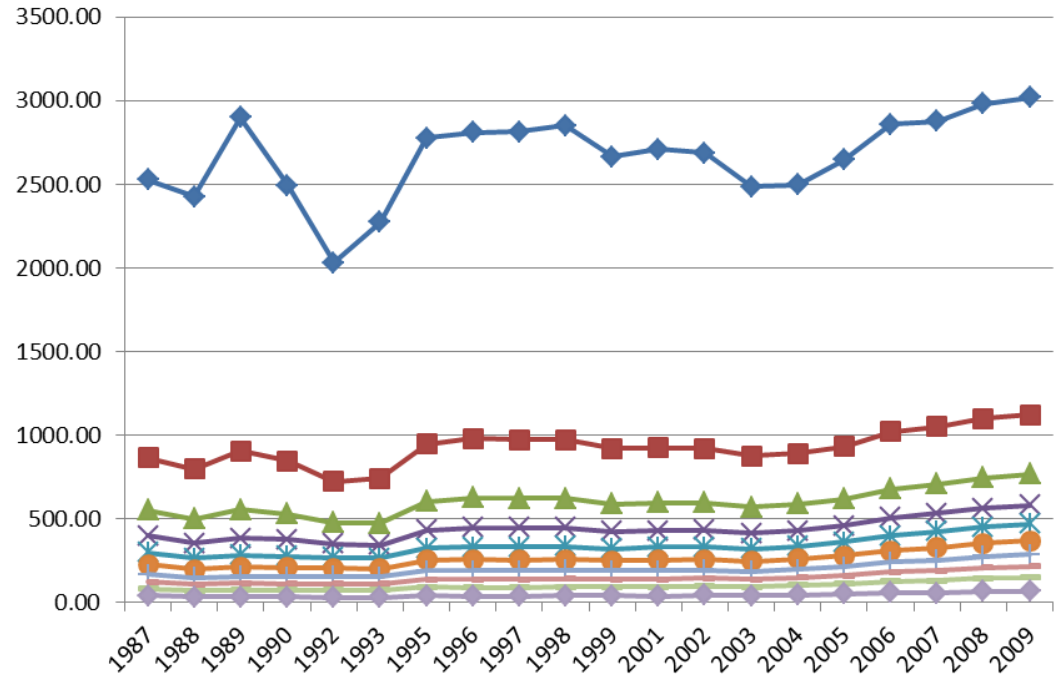
Note: Preliminary results. Not all totals will reconcile as some schools are included that do not have a specific administration.
Sources: See Table 5

Figure 5. 1987-2010 Enrolments



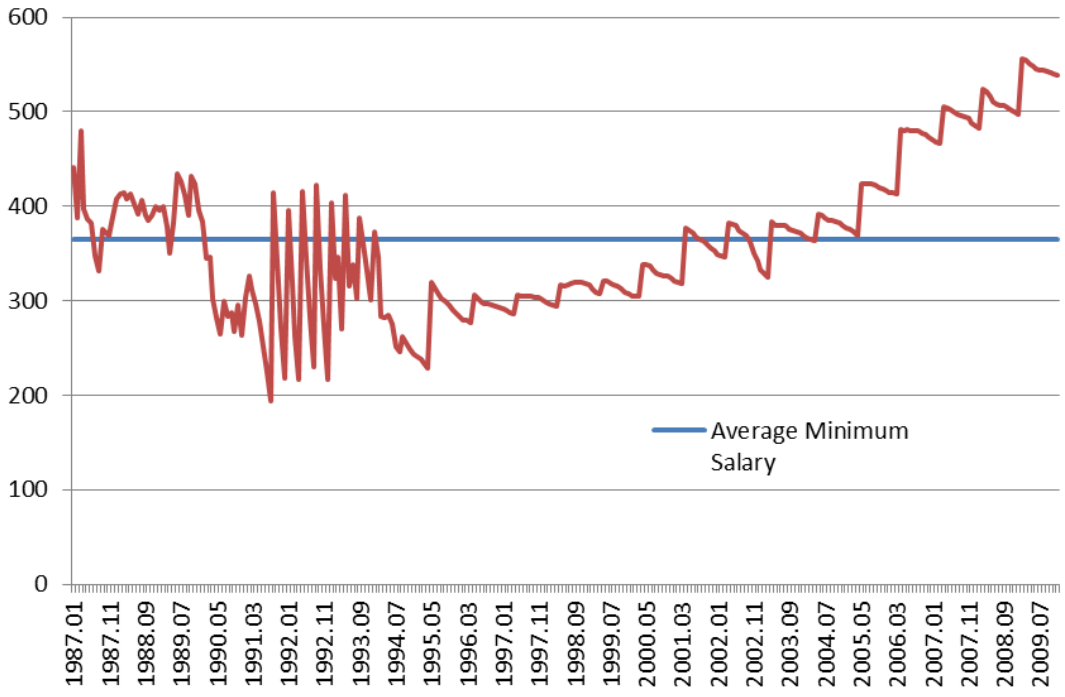
Note: Though accounting practices over time show inconsistence, a crude picture is still obtainable.
Sources: See Table 6.

Figure 6. 1987-2009 Average Household Monthly Income by Income Decile (In R$ Oct-09)



Source: See Table 14.

Figure 7. 1987-2009 Real Monthly Minimum Salary (R$)



Source: See Table 15.

Appendix

Table 1. 1987-2006 G8, LAC6 (Excluding Brazil) & BRICs (Excluding Brazil) Average Gini Coefficient as %

	Year									
Country	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**
Brazil	**59.1**	**61.0**	**62.1**	**60.4**	**n.a.**	**56.4**	**59.1**	**n.a.**	**58.2**	**58.3**
LAC6 (Excluding Brazil)	**28.2**	**33.1**	**36.9**	**28.4**	**36.7**	**40.9**	**41.5**	**42.7**	**41.1**	**43.3**
Argentina	n.a.	n.a.	50.4	n.a.	n.a.	52.1	n.a.	53.1	n.a.	52.6
Chile	n.a.	48.7	53.4	n.a.	56.7	50.0	57.6	53.7	56.8	54.5
Colombia	n.a.	25.1	26.7	25.4	31.1	43.0	47.9	44.1	44.5	46.2
Mexico	31.9	30.0	27.6	31.0	31.5	28.3	31.1	31.2	31.5	31.2
Venezuela	24.5	28.4	26.6	28.7	27.6	30.9	29.5	31.5	31.6	31.8
BRICs (Excluding Brazil)	**46.1**	**47.5**	**48.9**	**46.5**	**47.5**	**45.8**	**44.5**	**51.6**	**50.1**	**51.7**
China	53.4	54.5	57.0	54.0	55.4	52.0	48.9	55.3	54.5	55.4
India	41.7	42.5	42.2	41.0	41.3	40.6	40.2	54.5	48.0	52.1
Russian Federation	43.3	45.4	47.6	44.4	45.9	44.7	44.4	45.2	47.8	47.8
G8	**32.8**	**33.4**	**32.8**	**32.1**	**32.7**	**32.7**	**32.7**	**34.1**	**33.3**	**32.9**
Canada	40.3	40.5	40.9	40.4	39.1	40.7	42.3	40.7	41.8	42.1
France	34.4	n.a.	32.4	n.a.	30.8	n.a.	35.5	n.a.	35.3	32.3
Germany	n.a.	n.a.	31.2	35.0	n.a.	31.1	24.8	n.a.	31.6	n.a.
Italy	32.4	31.7	31.3	30.4	33.3	32.4	31.5	33.7	32.0	n.a.
Japan	n.a.	n.a.	32.7	28.0	n.a.	n.a.	n.a.	32.3	30.2	30.2
United Kingdom	26.9	30.9	29.0	25.2	25.3	25.7	28.5	29.2	28.7	27.8
United States	30.0	30.4	32.1	33.5	34.8	33.8	33.6	34.6	33.6	32.3

Table 1. ***Continued***

	Year									
Country	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Brazil	**59.6**	**59.5**	**58.5**	**n.a.**	**60.0**	**58.3**	**57.6**	**56.6**	**56.4**	**n.a.**
LAC6 (Excluding Brazil)	**39.7**	**44.1**	**41.4**	**44.0**	**46.0**	**43.1**	**37.1**	**49.9**	**47.8**	**45.1**
Argentina	n.a.	53.8	n.a.	54.0	n.a.	51.0	n.a.	49.9	51.0	n.a.
Chile	60.6	56.2	56.5	56.7	n.a.	n.a.	n.a.	55.8	n.a.	n.a.
Colombia	37.6	41.0	n.a.	43.7	47.2	40.0	n.a.	46.9	44.5	45.1
Mexico	32.3	32.8	32.8	33.0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Venezuela	28.4	36.7	35.0	32.4	44.8	38.1	37.1	46.9	n.a.	n.a.
BRICs (Excluding Brazil)	**49.0**	**50.7**	**50.9**	**50.9**	**49.3**	**50.4**	**51.2**	**48.1**	**48.9**	**48.6**
China	n.a.	55.2	56.8	57.4	n.a.	n.a.	54.6	n.a.	n.a.	n.a.
India	50.8	47.4	46.8	44.9	46.4	47.5	46.2	45.4	47.6	n.a.
Russian Federation	47.2	49.4	49.1	50.4	52.2	53.3	52.8	50.8	50.2	48.6
G8	**32.4**	**33.7**	**32.9**	**33.1**	**32.6**	**34.4**	**34.2**	**34.7**	**30.3**	**29.5**
Canada	42.3	45.3	45.5	41.7	46.3	46.2	46.4	46.4	n.a.	n.a.
France	31.7	35.8	30.4	34.6	29.2	35.2	n.a.	33.0	33.0	32.0
Germany	30.3	31.9	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Italy	33.6	n.a.	32.3	n.a.	n.a.	n.a.	n.a.	36.8	n.a.	n.a.
Japan	28.6	29.5	28.2	28.2	27.6	27.0	27.0	28.0	28.0	27.0
United Kingdom	28.8	27.2	27.3	27.8	27.4	29.6	29.3	29.2	26.0	27.0
United States	31.9	32.7	34.0	33.1	32.6	34.3	34.0	n.a.	34.0	32.0

Note: n.a. = no data available

Source: The United Nations University – World Institute for Development Economics Research World Income Inequality Database (WIID), http://www.wider.unu.edu/research/Database/en_GB/database/

Table 2. 1987-2006 G8, LAC6 (Excluding Brazil) & BRICs (Excluding Brazil) Average % of Income share held by the highest decile

	Year									
Country	**1987**	**1988**	**1989**	**1990**	**1991**	**1992**	**1993**	**1994**	**1995**	**1996**
Brazil	**46.7**	**48.5**	**50.1**	**47.9**	**n.a.**	**46.3**	**48.3**	**n.a.**	**48.1**	**47.8**
LAC6 (Excluding Brazil)	**37.2**	**34.2**	**40.2**	**37.8**	**34.8**	**38.4**	**40.2**	**41.3**	**41.3**	**41.1**
Argentina	34.0	34.3	35.9	35.3	36.4	34.1	33.1	34.5	37.0	36.4
Chile	44.4	n.a.	48.9	45.1	n.a.	44.3	41.8	44.5	45.4	45.2
Colombia	n.a.	n.a.	41.8	n.a.	n.a.	39.9	45.8	42.4	47.0	43.8
Mexico	n.a.	n.a.	42.1	n.a.	n.a.	42.2	n.a.	43.9	n.a.	42.1
Venezuela	33.1	34.1	32.2	32.9	33.2	31.7	n.a.	n.a.	35.8	37.9
BRICs (Excluding Brazil)	**n.a.**	**19.5**	**n.a.**	**n.a.**	**n.a.**	**34.2**	**39.5**	**32.5**	**32.4**	**37.6**
China	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	31.7	n.a.
India	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Russian Federation	n.a.	19.5	n.a.	n.a.	n.a.	34.2	39.5	32.5	33.2	37.6
G8	**24.1**	**23.9**	**24.6**	**24.8**	**24.8**	**24.1**	**24.2**	**25.5**	**24.5**	**23.7**
Canada	23.9	n.a.	n.a.	n.a.	23.4	n.a.	n.a.	23.7	n.a.	n.a.
France	n.a.	n.a.	24.9	n.a.	n.a.	n.a.	n.a.	25.6	23.0	23.0
Germany	22.8	22.9	23.1	23.5	23.4	22.0	22.3	23.2	22.6	22.1
Italy	25.8	n.a.	25.2	n.a.	24.1	n.a.	26.2	n.a.	26.2	24.0
Japan	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	21.7	n.a.	n.a.	n.a.
United Kingdom	23.9	25.0	25.1	26.0	26.6	26.2	26.4	27.0	26.2	25.5
United States	n.a.	n.a.	n.a.	n.a.	26.4	n.a.	n.a.	27.9	n.a.	n.a.

Table 2. ***Continued***

Country	Year									
	1997	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Brazil	**47.9**	**48.2**	**46.8**	**n.a.**	**48.5**	**46.6**	**45.7**	**44.9**	**45.0**	**n.a.**
LAC6 (Excluding Brazil)	**42.8**	**40.8**	**43.5**	**41.3**	**37.0**	**38.6**	**39.7**	**39.0**	**37.9**	**35.9**
Argentina	35.7	37.5	36.8	37.4	39.0	40.3	39.8	38.2	37.7	35.9
Chile	n.a.	44.7	48.3	47.5	n.a.	n.a.	45.0	n.a.	n.a.	n.a.
Colombia	55.4	44.0	45.3	45.5	n.a.	n.a.	n.a.	44.7	n.a.	n.a.
Mexico	n.a.	42.1	n.a.	42.7	n.a.	39.8	n.a.	39.2	40.3	n.a.
Venezuela	37.5	35.5	n.a.	33.3	35.0	35.6	34.4	33.9	35.7	n.a.
BRICs (Excluding Brazil)	**n.a.**	**34.6**	**28.9**	**33.5**	**33.1**	**26.2**	**n.a.**	**33.0**	**n.a.**	**n.a.**
China	n.a.	30.4	n.a.	n.a.	33.1	28.6	n.a.	34.9	n.a.	n.a.
India	n.a.	n.a.	28.9	n.a.	n.a.	n.a.	n.a.	31.1	n.a.	n.a.
Russian Federation	n.a.	38.7	n.a.	33.5	n.a.	23.8	n.a.	n.a.	n.a.	n.a.
G8	**24.5**	**24.3**	**23.8**	**25.1**	**23.0**	**25.7**	**23.0**	**22.8**	**n.a.**	**n.a.**
Canada	23.9	25.0	n.a.	24.8	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
France	23.0	22.0	24.0	22.0	22.0	n.a.	n.a.	n.a.	n.a.	n.a.
Germany	22.2	21.8	21.8	22.3	21.9	23.0	23.0	22.8	n.a.	n.a.
Italy	23.0	26.8	23.0	25.6	22.0	26.5	n.a.	n.a.	n.a.	n.a.
Japan	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom	24.9	25.7	26.5	26.4	25.9	27.7	n.a.	n.a.	n.a.	n.a.
United States	30.2	n.a.	n.a.	29.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Note: n.a. = no data available

Source: The United Nations University – World Institute for Development Economics Research World Income Inequality Database (WIID), http://www.wider.unu.edu/research/Database/en_GB/database/

Table 5. Number of Schools by Level of Education 1981-2011

Year	Level	Federal	State	Municipal	Public Schools	Private Schools	Total
1981	Pré-Escola	125	5,749	4,785	10,385	7,369	18,028
	Ensino Fundamental	666	53,598	128,572	182,589	9,793	192,629
	Ensino Médio	119	3,220	549	3,888	4,031	7,930
	Ensino Superior	58	80	111	249	614	863
1985	Pré-Escola	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Ensino Fundamental	630	53,775	122,481	176,885	10,370	187,274
	Ensino Médio	137	4,421	638	5,196	4,064	9,260
	Ensino Superior	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1987	Pré-Escola	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	Ensino Fundamental	760	n.a.	n.a.	181,804	11,084	192,888
	Ensino Médio	138	n.a.	n.a.	6,247	3,893	10,140
	Ensino Superior	54	83	103	240	613	853
1991	Pré-Escola	232	14,784	29,540	44,556	12,311	56,867
	Ensino Fundamental	443	46,683	134,767	181,893	11,927	193,820
	Ensino Médio	124	6,730	828	7,682	3,909	11,591
	Ensino Superior	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1996	Pré-Escola	56	13,271	47,602	60,929	16,811	77,740
	Ensino Fundamental	156	47,248	132,549	179,953	15,814	195,767
	Ensino Médio	137	9,038	1,167	10,342	4,871	15,213
	Ensino Superior	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Table 5 Continued

Year	Level	Federal	State	Municipal	Public Schools	Private Schools	Total
2000	Pré-Escola	14	6,586	52,455	59,055	22,698	84,617
	Ensino Fundamental	47	33,678	129,643	163,368	18,136	181,504
	Ensino Médio	164	11,977	1,086	13,227	6,229	19,456
	Ensino Superior	61	61	54	176	1,004	1,180
2001	Pré-Escola	19	5,522	60,070	65,611	25,071	90,682
	Ensino Fundamental	48	32,938	126,242	159,228	18,552	177,780
	Ensino Médio	162	12,807	947	13,916	6,304	20,220
	Ensino Superior	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2002	Pré-Escola	17	5,347	61,667	67,031	25,656	92,687
	Ensino Fundamental	44	32,316	121,336	153,696	18,812	172,508
	Ensino Médio	165	13,758	848	14,771	6,533	21,304
	Ensino Superior	67	63	53	183	1,208	1,391
2006	Pré-Escola	17	4,190	76,579	80,786	26,589	107,375
	Ensino Fundamental	41	29,016	110,782	139,839	19,177	159,016
	Ensino Médio	162	16,078	832	17,072	7,059	24,131
	Ensino Superior	105	83	60	248	2,022	2,270
2011	Pré-Escola	19	1,186	79,094	80,299	25,993	106,292
	Ensino Fundamental	46	26,595	98,440	125,081	21,160	146,241
	Ensino Médio	328	18,381	444	19,153	7,791	26,944
	Ensino Superior	99	108	71	278	2,100	2,378

Note: Preliminary results. Not all totals will reconcile as some schools are included that do not have a specific administration. N.a. if no data available.
Source: Ministério da Educação e Cultura in Anuário Estatístico do Brasil 1982-2011

Table 6. 1987-2010 Enrolments

	Level of Education					
	Pré-Escola			Ensino Fundamental		
	Total	Public	Private	Total	Public	Private
1987	n.a.	n.a.	n.a.	26,708,308	23,323,394	3,384,914
1988	n.a.	n.a.	n.a.	26,754,501	23,387,383	3,367,118
1989	3,396,074	2,355,151	1,040,923	27,557,542	24,114,558	3,442,984
1990	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1991	3,605,511	2,568,882	1,036,629	28,948,266	25,354,119	3,594,147
1992	3,795,217	2,780,957	1,014,260	29,992,140	26,479,572	3,512,568
1993	4,085,978	3,055,030	1,030,948	30,520,748	27,030,680	3,490,068
1994	5,686,762	4,355,285	1,331,477	31,101,662	27,518,600	3,583,062
1995	5,749,237	4,366,860	1,382,377	32,668,738	28,870,159	3,798,579
1996	4,270,376	3,250,889	1,019,487	33,131,270	29,423,373	3,707,897
1997	4,292,208	3,304,776	987,432	34,229,388	30,565,641	3,663,747
1998	4,111,120	3,123,496	987,624	35,792,554	32,409,205	3,383,349
1999	4,235,278	3,180,447	1,054,831	36,059,742	32,782,395	3,277,347
2000	4,421,332	3,332,173	1,089,159	35,717,948	32,528,707	3,189,241
2001	4,818,803	3,594,896	1,223,907	35,298,089	32,089,803	3,208,286
2002	4,977,847	3,706,894	1,270,953	35,150,362	31,915,585	3,234,777
2003	5,155,676	3,837,092	1,318,584	34,438,749	31,162,624	3,276,125
2004	5,555,525	4,071,879	1,483,646	34,012,434	30,680,954	3,331,480
2005	5,790,670	4,277,350	1,513,320	33,534,561	30,157,792	3,376,769
2006	5,588,153	4,148,226	1,439,927	33,282,663	29,814,686	3,467,977
2007	4,930,287	3,898,095	1,032,192	32,122,273	28,928,605	3,193,668
2008	4,967,525	3,849,829	1,117,696	32,086,700	28,468,696	3,618,004
2009	4,866,268	3,735,751	1,130,517	31,705,528	27,927,139	3,778,389
2010	4,692,045	3,573,764	1,118,281	31,005,341	27,064,103	3,941,238

Table 6 Continued

	Level of Education					
	Ensino Médio			Ensino Superior		
	Total	Public	Private	Total	Public	Private
1987	3,206,207	2,080,263	1,125,113	1,470,555	584,965	885,590
1988	3,368,150	2,283,585	1,084,565	1,503,560	585,351	918,209
1989	3,477,859	2,419,390	1,058,469	1,518,904	584,414	934,490
1990	n.a.	n.a.	n.a.	1,540,080	578,625	961,455
1991	3,725,133	2,702,521	1,022,612	1,565,056	605,736	959,320
1992	3,986,653	3,008,240	978,413	n.a.	n.a.	n.a.
1993	4,206,766	3,219,699	987,067	1,594,668	653,516	941,152
1994	4,510,199	3,471,101	1,039,098	1,661,034	690,450	970,584
1995	5,371,837	4,209,048	1,162,789	1,759,703	700,540	1,059,163
1996	5,739,077	4,562,558	1,176,519	1,868,529	735,427	1,133,102
1997	6,405,057	5,137,992	1,267,065	1,945,615	759,182	1,186,433
1998	6,968,531	5,741,890	1,226,641	2,125,958	804,729	1,321,229
1999	7,769,199	6,544,835	1,224,364	2,369,945	832,022	1,537,923
2000	8,192,948	7,039,529	1,153,419	2,694,245	887,026	1,807,219
2001	8,398,008	7,283,528	1,114,480	3,030,754	939,225	2,091,529
2002	8,710,584	7,587,684	1,122,900	3,479,913	1,051,655	2,428,258
2003	9,072,942	7,945,425	1,127,517	3,887,022	1,136,370	2,750,652
2004	9,169,357	8,057,966	1,111,391	4,163,733	1,178,328	2,985,405
2005	9,031,302	7,933,713	1,097,589	4,453,156	1,192,189	3,260,967
2006	8,906,820	7,838,086	1,068,734	4,676,646	1,209,304	3,467,342
2007	8,369,369	7,472,301	897,068	4,880,381	1,240,968	3,639,413
2008	8,366,100	7,395,577	970,523	5,080,056	1,273,965	3,806,091
2009	8,337,160	7,364,153	973,007	5,115,896	1,351,168	3,764,728
2010	8,357,675	7,369,837	987,838	5,449,120	1,461,696	3,987,424

Note: Counting practices were not perfectly consistent over time; however a crude picture is still possible. n.a. = no data available
Source: MEC in Anuário Estatístico do Brasil 1987-2000 and INEP, http://portal.inep.gov.br/basica-censo-escolar-sinopse-sinopse

Table 7. Nominal Revenue Collected by all levels of government 1987-2009

	Revenue Collected			
Year	**Union**	**States and Federal District**	**Municipalities**	**Total**
		Thousands of cruzados (Cz$ 1.000)		
1987	1,692,405,901	1,172,820,151	391,818,390	3,257,044,442
1988	15,949,586,311	8,041,262,637	1,645,278,441	25,636,127,389
		Thousands of cruzados novos(NCz$ 1.000)		
1989	547,059,356	132,687,508	30,168,058	709,914,922
		Thousands of cruzeiros (Cr$ 1.000)		
1990	21,649,721,712	3,930,498,551	1,049,760,825	26,629,981,088
1991	46,073,797,067	18,385,568,857	5,357,949,550	69,817,315,474
1992	659,074,785,624	205,686,345,041	54,469,349,163	919,230,479,828
		Thousands of cruzeiros reais (CR$ 1.000)		
1993	22,358,761,287	4,591,940,563	2,000,185,675	28,950,887,525
		Thousands of reais (R$ 1.000)		
1994	181,526,857	41,677,303	17,969,446	241,173,606
1995	316,217,098	79,193,000	38,677,693	434,087,791
1996	298,924,763	99,947,000	45,153,547	444,025,310
1997	415,189,033	173,609,107	49,625,521	638,423,661
1998	508,675,217	135,630,781	50,617,609	694,923,607
1999	606,416,121	151,084,000	55,024,099	812,524,220
2000	651,023,201	152,392,939	78,912,200	882,328,340
2001	608,097,063	167,773,406	71,900,818	847,771,287
2002	721,922,609	181,813,982	86,411,336	990,147,927
2003	918,530,285	209,277,990	112,067,357	1,239,875,632
2004	931,525,697	239,470,809	118,689,185	1,289,685,691
2005	1,161,168,757	275,734,744	123,190,655	1,560,094,156
2006	1,181,809,271	305,424,854	150,572,831	1,637,806,956
2007	1,243,544,911	343,257,672	193,795,495	1,780,598,078
2008	1,215,777,790	416,947,419	228,066,038	1,860,791,247
2009	1,515,505,211	444,649,959	248,669,478	2,208,824,648

Note: It is important to note here that the table cannot be used to identify rapid increases in revenues, as Brazil suffered from high inflation throughout the 1980s and early 1990s: until the Plano Real was put in place and the table is merely for proportional purposes.[126]

Source: Estatístico do Seculo XX, http://www.ibge.gov.br/seculoxx/economia/financas_publicas/financas_publicas.shtm and INEP, http://portal.inep.gov.br/estatisticas-gastoseducacao-receita_total-receita_federal

[126] Paiva Abreu and Werneck, 'The Brazilian Economy', p.431.

Table 11. Population by age groups (current population and resident) 1991-2010

	Year		
Age Cohort	**1991**	**2000**	**2010**
Total	146,825,475	169,799,170	190,755,799
0 to 4 years	16,521,114	16,375,728	13,796,159
5 to 9 years	17,420,159	16,542,327	14,969,375
10 to 14 years	17,047,159	17,348,067	17,166,761
15 to 19 years	15,017,472	17,939,815	16,990,870
20 to 24 years	13,564,878	16,141,515	17,245,190
25 to 29 years	12,638,078	13,849,665	17,104,413
30 to 39 years	20,527,256	25,290,473	29,633,093
40 to 49 years	13,959,402	19,268,235	24,842,718
50 to 59 years	9,407,252	12,507,316	18,416,621
60 to 69 years	6,412,918	8,182,035	11,349,929
70 years or more	4,309,787	6,353,994	9,240,670
0 to 19 years	66,005,904	68,205,937	62,923,165
20 to 50 years	70,096,866	87,057,204	107,242,035
20 + years	80,819,571	101,593,233	127,832,634
50 + years	20,129,957	27,043,345	39,007,220

Source: Directorate General of Statistics, [187?] - 1930 Census of Brazil 1872-1920; IBGE Census 1940-2010. Until 1991, data extracted from: Statistics of the twentieth century. Rio de Janeiro: IBGE, 2007 Statistical Yearbook of Brazil in 1994. Rio de Janeiro: IBGE, vol.54, 1994. In http://www.ibge.gov.br/home/

Table 12. Present and Resident Population, by Region and State, Level of Urbanization 1991-2010 (%)

	Year		
	1991	**2000**	**2010**
Urbanisation	75.47	81.23	84.36
North	7	7.6	8.3
North East	28.9	28.1	27.8
South East	42.7	42.6	42.1
South	15.1	14.8	14.4
Central West	6.4	6.9	7.4
Rondonia	0.8	0.8	0.8
Acre	0.3	0.3	0.4
Amazonas	1.4	1.7	1.8
Roraima	0.2	0.2	0.2
Para	3.5	3.7	4
Amapa	0.2	0.3	0.4
Tocantins	0.6	0.7	0.7
Maranhao	3.4	3.3	3.5
Piaui	1.8	1.7	1.6
Ceara	4.3	4.4	4.4
Rio Grande do Norte	1.6	1.6	1.7
Paraiba	2.2	2	2
Pernambuco	4.9	4.7	4.6
Alagoas	1.7	1.7	1.6
Sergipe	1	1.1	1.1
Bahia	8.1	7.7	7.4
Minas Gerais	10.7	10.5	10.3
Espirito Santo	1.8	1.8	1.8
Rio de Janeiro	8.7	8.5	8.4
Sao Paulo	21.5	21.8	21.6
Parana	5.8	5.6	5.5
Santa Catarina	3.1	3.2	3.3
Rio Grande do Sul	6.2	6	5.6
Mato Grosso do Sul	1.2	1.2	1.3
Mato Grosso	1.4	1.5	1.6
Goias	2.7	3	3.2

Source: IBGE, Directorate General of Statistics, [187?] / 1930, Census of Brazil 1872/1920, IBGE, Demographic Census 1940/2010. Until 1991, data extracted from: Statistics of the twentieth century. Rio de Janeiro: IBGE, 2007 Statistical Yearbook of Brazil in 1994. Rio de Janeiro: IBGE, vol. 54, 1994. IBGE, Demographic Census 1950/2010. Until 1991, data from Statistics of the twentieth century, Rio de Janeiro: IBGE, in 2007 Brazil's Statistical Yearbook, 1993, vol 53, 1993. In http://www.ibge.gov.br/home/

Table 13. Present and Resident Population, by colour or race 1991-2010 (%)

	Year	
Race	**1991**	**2000**
White	51.56	53.74
Black	5	6.21
Brown	42.45	38.45
Yellow	0.43	0.45
Indigenous	0.2	0.4

Source: IBGE, Demographic Census. Data from: Population trends: an analysis of sample results from the 2000 census. Rio de Janeiro: IBGE, 2004: pp 25/26, Figure 2. In http://www.ibge.gov.br/home/

Table 14. 1987-2009 Average Household Monthly Income by Income Decile (In R$ Oct-09)

Year	Average monthly income of the population	Decile									
		1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1987	529.02	40.59	84.20	124.66	169.88	227.16	299.25	400.42	553.55	864.62	2525.85
1988	490.77	33.78	72.88	108.13	148.54	199.04	265.25	356.17	499.61	796.55	2427.73
1989	562.94	36.20	77.16	114.60	158.50	211.61	284.98	385.74	554.75	906.91	2898.96
1990	510.97	34.84	74.60	112.56	154.70	208.50	277.45	376.24	531.40	846.64	2492.80
1992	443.80	29.74	74.80	113.27	157.12	206.70	270.75	352.22	476.27	725.45	2031.69
1993	467.62	30.80	74.84	113.01	154.18	202.99	264.73	344.66	474.51	742.02	2274.45
1995	579.92	40.78	93.43	138.79	190.25	252.70	325.61	432.25	603.50	946.78	2775.16
1996	591.28	37.05	90.77	138.24	192.17	256.64	332.80	447.58	626.74	981.02	2809.80
1997	590.65	38.41	91.99	138.65	191.06	255.70	332.13	446.82	624.19	972.10	2815.47
1998	596.81	41.98	95.71	143.45	195.89	259.55	335.70	448.04	622.27	973.04	2852.42
1999	563.49	41.60	93.95	139.11	189.61	250.99	321.38	424.24	589.36	921.27	2663.42
2001	571.31	38.66	93.74	140.38	191.84	254.11	331.12	430.15	596.45	925.76	2710.95
2002	571.62	44.85	99.41	144.67	195.45	257.16	334.27	432.59	597.93	921.44	2688.39
2003	538.21	41.27	94.92	139.32	188.86	247.28	322.75	414.56	571.14	875.00	2487.06
2004	550.84	47.39	104.00	150.04	200.21	260.65	337.49	430.79	588.16	892.66	2497.06
2005	583.96	52.39	112.81	161.46	214.95	279.29	361.46	458.89	620.01	931.42	2646.91
2006	638.29	59.00	127.30	182.33	242.30	311.74	399.13	505.95	678.40	1019.99	2856.76
2007	655.83	57.46	132.34	190.75	254.58	330.41	424.69	531.91	708.67	1050.29	2877.23
2008	689.61	66.26	145.09	209.03	275.81	355.33	452.94	562.54	747.42	1099.55	2982.17
2009	705.72	67.56	150.54	217.79	288.24	369.34	470.14	583.03	769.20	1123.26	3018.08

Note: Series calculated from the responses to the National Survey by Household Sampling (PNAD / IBGE).
Source: Institute of Applied Economic Research (IPEA), in http://www.ipeadata.gov.br/

Table 15. 1987-2011 Real Monthly Minimum Salary (R$)

Month	Minimum Salary	Month	Minimum Salary	Month	Minimum Salary	Month	Minimum Salary
1987.01	441	1990.07	299	1994.01	373	1997.07	304
1987.02	387	1990.08	283	1994.02	346	1997.08	305
1987.03	480	1990.09	288	1994.03	284	1997.09	304
1987.04	397	1990.1	267	1994.04	283	1997.1	303
1987.05	386	1990.11	296	1994.05	285	1997.11	303
1987.06	382	1990.12	264	1994.06	276	1997.12	301
1987.07	348	1991.01	304	1994.07	251	1998.01	299
1987.08	331	1991.02	326	1994.08	247	1998.02	297
1987.09	376	1991.03	312	1994.09	263	1998.03	296
1987.1	373	1991.04	297	1994.1	255	1998.04	294
1987.11	369	1991.05	279	1994.11	248	1998.05	316
1987.12	389	1991.06	251	1994.12	244	1998.06	316
1988.01	408	1991.07	224	1995.01	241	1998.07	317
1988.02	414	1991.08	194	1995.02	238	1998.08	318
1988.03	414	1991.09	414	1995.03	234	1998.09	319
1988.04	407	1991.1	342	1995.04	229	1998.1	319
1988.05	413	1991.11	271	1995.05	320	1998.11	320
1988.06	402	1991.12	218	1995.06	313	1998.12	318
1988.07	392	1992.01	396	1995.07	306	1999.01	316
1988.08	406	1992.02	318	1995.08	302	1999.02	312
1988.09	390	1992.03	261	1995.09	299	1999.03	308
1988.1	385	1992.04	216	1995.1	295	1999.04	307
1988.11	391	1992.05	416	1995.11	290	1999.05	321
1988.12	399	1992.06	344	1995.12	286	1999.06	321
1989.01	396	1992.07	282	1996.01	282	1999.07	318
1989.02	400	1992.08	230	1996.02	280	1999.08	317
1989.03	378	1992.09	422	1996.03	279	1999.09	315
1989.04	350	1992.1	335	1996.04	276	1999.1	312
1989.05	382	1992.11	272	1996.05	306	1999.11	309
1989.06	435	1992.12	217	1996.06	301	1999.12	307
1989.07	426	1993.01	403	1996.07	298	2000.01	305
1989.08	412	1993.02	323	1996.08	296	2000.02	305
1989.09	391	1993.03	346	1996.09	296	2000.03	305
1989.1	431	1993.04	270	1996.1	295	2000.04	338
1989.11	424	1993.05	411	1996.11	294	2000.05	338
1989.12	396	1993.06	315	1996.12	293	2000.06	337
1990.01	384	1993.07	338	1997.01	291	2000.07	333
1990.02	344	1993.08	303	1997.02	290	2000.08	329
1990.03	347	1993.09	387	1997.03	288	2000.09	327
1990.04	302	1993.1	361	1997.04	286	2000.1	327
1990.05	282	1993.11	332	1997.05	306	2000.11	326
1990.06	265	1993.12	301	1997.06	305	2000.12	324

Table 15. *Continued*

Month	Minimum Salary	Month	Minimum Salary	Month	Minimum Salary
2001.01	321	2004.03	365	2007.05	504
2001.02	320	2004.04	363	2007.06	502
2001.03	318	2004.05	392	2007.07	500
2001.04	376	2004.06	390	2007.08	498
2001.05	374	2004.07	387	2007.09	496
2001.06	372	2004.08	385	2007.1	495
2001.07	368	2004.09	385	2007.11	493
2001.08	365	2004.1	384	2007.12	488
2001.09	363	2004.11	382	2008.01	485
2001.1	360	2004.12	379	2008.02	482
2001.11	355	2005.01	377	2008.03	524
2001.12	353	2005.02	375	2008.04	521
2002.01	349	2005.03	373	2008.05	516
2002.02	348	2005.04	369	2008.06	511
2002.03	346	2005.05	423	2008.07	508
2002.04	382	2005.06	424	2008.08	507
2002.05	381	2005.07	423	2008.09	506
2002.06	379	2005.08	423	2008.1	504
2002.07	375	2005.09	423	2008.11	502
2002.08	372	2005.1	420	2008.12	500
2002.09	369	2005.11	418	2009.01	497
2002.1	363	2005.12	416	2009.01	497
2002.11	351	2006.01	415	2009.02	555
2002.12	342	2006.02	414	2009.03	554
2003.01	333	2006.03	413	2009.04	551
2003.02	329	2006.04	481	2009.05	548
2003.03	324	2006.05	480	2009.06	546
2003.04	384	2006.06	481	2009.07	544
2003.05	380	2006.07	480	2009.08	544
2003.06	380	2006.08	480	2009.09	543
2003.07	380	2006.09	480	2009.1	542
2003.08	379	2006.1	478	2009.11	540
2003.09	376	2006.11	476	2009.12	539
2003.1	375	2006.12	473	2010.01	586
2003.11	373	2007.01	470	2010.02	581
2003.12	371	2007.02	468	2010.03	577
2004.01	368	2007.03	466		
2004.02	367	2007.04	505		

Note: Series in reais (R $) appearing in the last month, established by the IPEA, by deflating the nominal wage index by the National Consumer Price Index (INPC) of IBGE in March 1979. For prior periods, the deflators used were IGPC-Mtb (jan/1948-mar/1979), the IPC-RJ/FGV (jan/1944-jan/1948) and IPC-SP/Fipe (jul/1940-jan / 1944).
Source: Institute of Applied Economic Research (IPEA), in http://www.ipeadata.gov.br/

Table 15. 1987-2010 Age of Subscribers

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	2	2521	n.a.	125	104	176	194	279	453	564	446	390
Under 16 years	72	5	n.a.	185	168	324	272	272	246	184	138	162
16 years	930	123	n.a.	1971	2052	2969	2512	3039	2537	1965	1764	1740
17 years	2778	1667	n.a.	10696	10209	11747	11287	13379	12288	10499	10266	10762
18 years	2963	8259	n.a.	9772	9678	9369	8921	11502	10872	9186	8839	9251
19 years	2179	7680	n.a.	5571	5885	5286	4825	6575	6264	4935	4657	4877
20 years	1461	4850	n.a.	2881	3007	2938	2521	3325	3241	2512	2341	2400
21 to 23 years	1875	5372	n.a.	2994	2909	2932	2695	3549	3129	2420	2143	2268
24 to 29 years	793	1582	n.a.	1134	1198	1369	1142	1518	1194	852	883	975
More than 29 years	207	333	n.a.	343	358	512	466	587	514	393	474	502
Total	13260	32392	n.a.	35672	35568	37622	34835	44025	40738	33510	31951	33327

Table 15. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	263	448	273	269	316	919	0	0	0	0	0	0
Under 16 years	140	201	153	205	207	215	101	69	22	34	49	56
16 years	1832	2089	2235	2537	2656	2839	1849	1573	721	822	896	1128
17 years	12200	12776	13375	13220	13153	14658	13091	12331	7229	7243	7551	8736
18 years	10719	12154	12559	12714	11935	12854	14563	13692	16126	16508	16768	18884
19 years	5662	6624	7287	7941	7124	7111	9447	8552	10970	10710	10729	12245
20 years	2886	3316	3634	3924	4053	4006	4801	4694	5666	5400	5308	5881
21 to 23 years	2634	3318	3530	3972	4341	4684	5813	5059	5723	5231	4969	5320
24 to 29 years	1223	1412	1523	1638	1825	2146	2732	2491	2570	2421	2070	2266
More than 29 years	587	762	746	845	882	1117	1378	1145	1192	1108	982	968
Total	38146	43100	45315	47265	46492	50549	53775	49606	50219	49477	49322	55484

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 16. 1987-2010 Age of Subscribers Enrolled

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	0	320	n.a.	7	2	8	10	9	14	25	18	17
Under 16 years	0	0	n.a.	2	0	6	0	1	3	2	2	2
16 years	18	0	n.a.	24	25	77	65	49	43	41	51	33
17 years	320	19	n.a.	481	465	511	561	563	527	471	530	695
18 years	333	293	n.a.	432	420	470	513	528	502	454	493	595
19 years	233	343	n.a.	222	265	248	244	283	330	290	263	303
20 years	134	188	n.a.	108	140	152	156	165	158	166	135	156
21 to 23 years	150	221	n.a.	156	152	165	203	177	185	178	183	195
24 to 29 years	50	90	n.a.	81	109	118	118	112	98	98	74	125
More than 29 years	10	30	n.a.	24	34	45	62	45	34	46	40	79
Total	1248	1504	n.a.	1537	1612	1800	1932	1932	1894	1771	1789	2200

Table 16. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	9	14	14	9	14	44	0	0	0	0	0	0
Under 16 years	4	5	2	2	4	0	1	0	0	0	0	0
16 years	55	48	55	45	43	62	8	8	1	3	6	5
17 years	667	633	720	633	703	820	567	596	271	283	354	383
18 years	660	773	700	792	810	875	908	875	914	889	1154	1103
19 years	359	450	431	511	487	461	572	593	757	770	843	895
20 years	186	227	231	233	294	243	312	327	375	381	426	440
21 to 23 years	237	213	245	259	314	263	404	333	421	390	475	387
24 to 29 years	129	125	111	135	138	131	164	224	233	234	237	227
More than 29 years	89	68	58	60	70	72	58	77	89	82	80	96
Total	2395	2556	2567	2679	2877	2971	2994	3033	3061	3032	3575	3536

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 17. 1987-2010 Subscribers Type of Ensino Fundamental

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	70	927	581	209	222	160	182	271	439	517	389	362
Only private	2961	8779	9966	12278	12747	14229	13939	17718	17444	15583	15464	16494
Only public	7326	15644	14005	15522	14883	15032	13042	16376	14194	10594	9741	9955
Mixed, more time in a public	1531	3656	3050	3883	3570	3870	3570	4347	3730	2685	2376	2442
Mixed more time on private establishment	1259	3147	3094	3466	3068	3213	2975	3869	3776	3212	3079	3232
Mixed in equal time interval	n.a.	n.a.	236	314	899	947	939	1132	982	773	753	709
None of the above	113	239	0	0	179	171	188	312	173	146	149	133
Total	13260	32392	30932	35672	35568	37622	34835	44025	40738	33510	31951	33327

Table 17. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	271	468	264	286	335	980	1834	1982	1983	1795	1653	1555
Only private	18871	20653	21711	22800	21963	23527	24269	23443	25221	25988	27904	32350
Only public	11453	13720	15001	15846	15941	17730	19683	16777	15543	14635	12822	13685
Mixed, more time in a public	2866	3565	3768	3695	3398	3386	3308	3039	2845	2554	2429	2611
Mixed more time on private establishment	3535	3484	3425	3501	3574	3618	3317	3066	3187	3080	3102	3714
Mixed in equal time interval	986	1028	999	977	1131	1156	1160	1085	1288	1289	1291	1412
None of the above	164	182	147	160	150	152	204	214	152	136	121	157
Total	38146	43100	45315	47265	46492	50549	53775	49606	50219	49477	49322	55484

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 18. 1987-2010 Subscribers Enrolled, Type of Ensino Fundamental

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	2	37	20	4	9	6	9	10	15	24	16	17
Only private	430	466	536	627	678	806	778	839	880	794	902	1073
Only public	508	660	587	561	590	620	731	660	635	585	504	683
Mixed, more time in a public	156	169	128	161	141	148	171	180	161	141	134	159
Mixed more time on private establishment	140	160	149	168	137	156	170	171	164	165	172	207
Mixed in equal time interval	n.a.	n.a.	8	16	43	56	69	57	34	50	50	50
None of the above	12	12	0	0	14	8	4	15	5	12	11	11
Total	1248	1504	1428	1537	1612	1800	1932	1932	1894	1771	1789	2200

Table 18. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	12	17	16	10	13	45	83	106	88	108	103	97
Only private	1199	1274	1342	1349	1453	1581	1492	1514	1597	1627	2084	2043
Only public	695	753	755	792	831	804	975	883	889	807	869	850
Mixed, more time in a public	166	200	210	223	237	211	161	211	186	169	175	174
Mixed more time on private establishment	247	238	193	230	236	241	182	209	191	204	217	245
Mixed in equal time interval	63	63	45	68	99	78	87	92	99	103	115	116
None of the above	13	11	6	7	8	11	14	18	11	14	12	11
Total	2395	2556	2567	2679	2877	2971	2994	3033	3061	3032	3575	3536

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 19. 1987-2010 Subscribers Type of Ensino Médio

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	81	950	611	248	251	196	218	314	477	551	410	391
Only private	5916	16333	17317	21134	21360	22613	21305	26021	24096	20409	19913	21373
Only public	5227	10447	8681	9437	9303	10196	9418	12716	11571	8999	8632	8797
Mixed, more time in a public	1091	2520	2223	2423	2284	2035	1675	2218	2179	1598	1257	1137
Mixed more time on private establishment	821	1904	1913	2128	2128	2263	1917	2349	2097	1715	1526	1378
Mixed in equal time interval	n.a.	n.a.	186	302	242	319	302	407	318	238	213	251
None of the above	124	238	1	0	0	0	0	0	0	0	0	0
Total	13260	32392	30932	35672	35568	37622	34835	44025	40738	33510	31951	33327

Table 19. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	265	481	279	305	357	1018	1883	1997	2004	1826	1680	1581
Only private	24704	26875	28056	29151	28463	30414	30574	29395	31039	30752	32513	37459
Only public	10108	12528	13720	14526	14362	15854	18339	15534	14630	14705	13013	14107
Mixed, more time in a public	1264	1362	1468	1445	1420	1410	1249	1093	989	823	763	826
Mixed more time on private establishment	1362	1506	1473	1467	1541	1561	1325	1271	1332	1207	1188	1319
Mixed in equal time interval	187	169	160	173	163	143	138	112	103	96	109	123
None of the above	256	179	159	198	186	149	267	204	122	68	56	69
Total	38146	43100	45315	47265	46492	50549	53775	49606	50219	49477	49322	55484

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 20. 1987-2010 Subscribers Enrolled, Type of Ensino Médio

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	2	34	22	4	11	9	11	12	16	24	17	18
Only private	727	777	805	929	985	1113	1120	1177	1146	1032	1116	1396
Only public	360	499	442	433	430	502	609	554	554	531	486	621
Mixed, more time in a public	102	106	71	87	93	70	90	79	69	69	75	66
Mixed more time on private establishment	54	75	76	70	78	95	88	96	91	97	83	80
Mixed in equal time interval	n.a.	n.a.	12	14	15	11	14	14	18	18	12	19
None of the above	3	13	0	0	0	0	0	0	0	0	0	0
Total	1248	1504	1428	1537	1612	1800	1932	1932	1894	1771	1789	2200

Table 20. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	12	18	15	11	15	45	84	105	90	110	102	99
Only private	1199	1596	1641	1674	1836	1940	1786	1796	1843	1823	2268	2272
Only public	695	785	743	820	854	831	1021	971	991	994	1060	1030
Mixed, more time in a public	166	64	73	73	66	57	33	65	48	42	53	53
Mixed more time on private establishment	247	75	84	88	83	81	55	73	72	56	77	69
Mixed in equal time interval	63	7	7	6	10	12	4	10	6	4	9	10
None of the above	13	11	4	7	13	5	11	13	11	3	6	3
Total	2395	2556	2567	2679	2877	2971	2994	3033	3061	3032	3575	3536

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 21. 1987-2010 Subscribers and Enrolled, Attending Pre-University Preparatory Courses

	Subscribers				Enrolled			
	Blank	Yes	No	Total	Blank	Yes	No	Total
1987	121	6601	6538	13260	4	780	464	1248
1988	1070	18038	13284	32392	42	863	599	1504
1989	749	16302	13881	30932	28	754	646	1428
1990	467	19329	15876	35672	14	829	694	1537
1991	415	18892	16261	35568	15	892	705	1612
1992	344	19931	17347	37622	19	1007	774	1800
1993	304	18497	16034	34835	18	1051	863	1932
1994	410	24013	19602	44025	14	1155	763	1932
1995	615	23161	16962	40738	15	1164	715	1894
1996	663	19278	13569	33510	31	1051	689	1771
1997	493	18367	13091	31951	26	1089	674	1789
1998	502	19148	13677	33327	31	1309	860	2200
1999	339	22638	15169	38146	15	1448	932	2395
2000	620	25817	16663	43100	21	1697	838	2556
2001	402	28215	16698	45315	20	1638	909	2567
2002	441	29127	17697	47265	16	1830	833	2679
2003	1003	28043	17446	46492	49	1940	888	2877
2004	1459	29195	19895	50549	70	1939	962	2971
2005	1997	29140	22638	53775	90	1952	952	2994
2006	2092	27311	20203	49606	111	1911	1011	3033
2007	2134	27151	20934	50219	91	1916	1054	3061
2008	1918	26255	21304	49477	115	1820	1097	3032
2009	1796	26096	21430	49322	111	2079	1385	3575
2010	1674	29490	24320	55484	103	2095	1338	3536

Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 22. 1987-1998 Subscribers, Year First Entered the Exam

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	135	1099	722	515	332	345	329	475	607	692	545	567
The current vestibular	5588	10383	11764	14298	14093	13939	13304	18134	15707	12910	12778	13317
1 Year ago	3410	10573	8931	11077	11622	12226	10717	12810	11684	9292	9219	9321
2 Year ago	1521	4961	4673	4675	4647	5453	5041	5910	6077	4990	4317	4768
3 Year ago	1087	2487	2530	2634	2487	2813	2740	3227	3388	2910	2549	2637
4 Year ago	580	1118	955	1042	997	1110	1080	1458	1383	1193	1078	1072
5 Year ago	342	585	440	461	441	520	509	624	673	507	454	508
6 Year ago	183	342	271	256	237	293	336	326	326	293	251	267
7 Year ago	147	258	194	199	173	231	185	305	244	235	210	218
More than 7 Years Ago	267	586	452	515	539	692	594	756	649	488	550	652
Total	13260	32392	30932	35672	35568	37622	34835	44025	40738	33510	31951	33327

Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 23. 1987-1998 Subscribers Enrolled, Year First Entered the Exam

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	7	38	27	12	19	12	14	18	17	32	20	33
The current vestibular	271	327	375	456	426	449	514	500	491	445	495	625
1 Year ago	436	521	441	529	599	634	653	650	612	558	580	711
2 Year ago	233	233	252	233	258	292	268	348	326	292	287	325
3 Year ago	136	137	136	114	140	144	168	157	184	159	160	193
4 Year ago	66	72	62	59	57	84	99	71	84	101	78	86
5 Year ago	39	37	39	37	30	47	45	37	45	40	52	43
6 Year ago	15	37	23	20	15	21	39	27	29	34	29	25
7 Year ago	13	14	14	20	10	30	25	29	21	33	22	31
More than 7 Years Ago	32	88	59	57	58	87	107	95	85	77	66	128
Total	1248	1504	1428	1537	1612	1800	1932	1932	1894	1771	1789	2200

Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 24. 1987-2010 Subscribers Total Monthly Income of Family (In Minimum Salary)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	166	1185	785	671	681	643	795	n.a.	n.a.	1422	1035	774
Up to 1 ms	60	77	188	195	171	153	262	n.a.	n.a.	102	104	180
1Sa of the 3sm	408	433	781	961	708	861	2054	n.a.	n.a.	498	472	622
Of the 3sm 5sm	1131	1308	1678	2244	1775	2566	4185	n.a.	n.a.	1449	1322	1528
Of the 5sm 10SM	2741	4580	5646	5679	5040	6805	8045	n.a.	n.a.	4219	4495	4798
10SM of the 15sm	2793	5489	5659	6739	5865	6705	6406	n.a.	n.a.	5046	4401	4856
From 15sm to 20sm	2097	4942	5058	5414	5925	6285	4361	n.a.	n.a.	4800	4637	4530
20sm of the 30SM	1932	6089	4532	5830	5775	5558	4128	n.a.	n.a.	5428	4971	4967
30SM 40SM of the	1024	3660	3486	3553	4130	3615	2415	n.a.	n.a.	3907	3843	3923
Above 40SM	908	4629	3119	4386	5498	4431	2184	n.a.	n.a.	6639	6671	7149
Total	13260	32392	30932	35672	35568	37622	34835	n.a.	n.a.	33510	31951	33327

Table 24. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	660	727	493	516	611	1365	4087	3132	3204	3140	2882	3242
Up to 1 ms	136	164	192	239	316	582	482	465	640	477	395	388
1Sa of the 3sm	560	1121	1297	2165	2845	4215	4344	4974	6262	6090	5804	6391
Of the 3sm 5sm	1820	2860	3152	4704	6348	7780	7667	8885	7373	7258	8051	8501
Of the 5sm 10SM	6008	7848	9400	9882	11356	11189	13842	13944	14147	13045	12565	14554
10SM of the 15sm	5579	6962	7222	7138	7560	7692	6924	5183	8016	8279	8190	8791
From 15sm to 20sm	5130	4926	6199	6373	5358	5850	7389	6019	3770	3683	3751	4909
20sm of the 30SM	5935	7538	6517	7862	5883	6611	4010	3377	4541	4609	4503	4905
30SM 40SM of the	5491	4200	5128	4231	2981	2529	3274	2233	686	1601	1467	1788
Above 40SM	6827	6754	5715	4155	3234	2736	1756	1394	1580	1295	1714	2015
Total	38146	43100	45315	47265	46492	50549	53775	49606	50219	49477	49322	55484

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 25. 1987-2010 Subscribers Enrolled, Total Monthly Income of Family (In Minimum Salary)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	8	44	34	25	36	23	41	n.a.	n.a.	63	49	49
Up to 1 ms	6	2	8	9	6	11	14	n.a.	n.a.	7	3	5
1Sa of the 3sm	23	15	21	35	28	39	109	n.a.	n.a.	20	21	41
Of the 3sm 5sm	75	58	77	79	58	113	256	n.a.	n.a.	106	58	104
Of the 5sm 10SM	205	191	239	236	218	313	462	n.a.	n.a.	222	258	352
10SM of the 15sm	257	212	252	277	251	304	340	n.a.	n.a.	290	259	318
From 15sm to 20sm	204	182	228	216	270	303	220	n.a.	n.a.	262	255	310
20sm of the 30SM	222	300	208	271	277	279	239	n.a.	n.a.	291	300	318
30SM 40SM of the	134	208	183	170	207	193	135	n.a.	n.a.	219	234	262
Above 40SM	114	292	178	219	261	222	116	n.a.	n.a.	291	352	441
Total	1248	1504	1428	1537	1612	1800	1932	n.a.	n.a.	1771	1789	2200

Table 25. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	39	27	19	20	28	60	185	182	170	188	203	172
Up to 1 ms	11	11	7	13	14	31	15	21	16	14	19	21
1Sa of the 3sm	40	53	61	92	131	147	160	200	257	258	313	364
Of the 3sm 5sm	125	128	149	234	344	370	368	487	422	443	606	559
Of the 5sm 10SM	374	517	516	588	704	722	813	928	1034	894	1008	1022
10SM of the 15sm	374	420	408	419	508	475	444	382	555	565	586	571
From 15sm to 20sm	342	309	403	399	361	403	478	370	228	225	310	324
20sm of the 30SM	395	502	401	469	393	437	250	247	258	281	327	301
30SM 40SM of the	337	249	304	241	207	161	183	135	50	88	93	104
Above 40SM	358	340	299	204	187	165	98	81	71	76	110	98
Total	2395	2556	2567	2679	2877	2971	2994	3033	3061	3032	3575	3536

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 26. 1987-2010 Subscribers Occupation of Father

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	175	1194	827	603	504	531	704	1242	1537	1421	1255	1210
Senior political and administrative, owners of large companies	259	750	799	852	762	768	633	806	873	774	675	753
Professionals, management and direction, owners of medium-sized enterprises	4521	11923	12476	14034	14418	14925	14403	16858	16581	14383	13713	14082
Pos. lower supervision. or inspected. of occupation. non-manual, props. peqs. companies	3689	9149	8252	10260	9917	10167	9269	11610	11117	8782	8290	8522
Routine non-manual occupations	1625	3401	3366	3986	3792	4281	3562	5231	3925	2969	3031	3303
Supervision of manual work	1128	2126	1917	2173	2140	2458	2131	2742	2267	1745	1523	1629
Specialized manual occupations	1494	3197	2806	3151	3340	3701	3405	4407	3476	2717	2730	2978
Unskilled manual occupations	369	652	489	613	695	791	728	1129	962	719	734	850
Other	0	0	0	0	0	0	0	0	0	0	0	0
Total	13260	32392	30932	35672	35568	37622	34835	44025	40738	33510	31951	33327

Table 26. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	1045	1387	1404	1463	1663	2727	3502	3350	3494	3151	2802	2923
Senior political and administrative, owners of large companies	729	851	748	800	820	1493	1874	1462	1511	1247	1380	1540
Professionals, management and direction, owners of medium-sized enterprises	16414	16860	17837	18075	19871	20829	20853	19637	20793	20176	21374	23824
Pos. lower supervision. or inspected. of occupation. non-manual, props. peqs. companies	9195	11223	11830	12254	10605	9833	8756	8130	7930	7726	7838	9138
Routine non-manual occupations	4184	4435	4687	5070	4227	4701	5005	4687	4806	4795	4662	5318
Supervision of manual work	1837	2115	2248	2288	1687	1320	1333	1166	1134	1131	1067	1206
Specialized manual occupations	3679	4347	4694	5040	4917	4388	4858	4361	3989	4083	3638	4137
Unskilled manual occupations	1063	1360	1276	1553	1985	1909	2409	2101	2168	2022	1753	1932
Other	0	522	591	722	717	3349	5185	4712	4394	5146	4808	5466
Total	38146	43100	45315	47265	46492	50549	53775	49606	50219	49477	49322	55484

Note: N.a. if no data available. The Category of other has included small categories that have changes in the questionnaire over time.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 27. 1987-2010 Subscribers Enrolled, Occupation of Father

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	7	40	32	14	19	14	33	50	52	74	53	79
Senior political and administrative, owners of large companies	30	41	45	35	38	38	36	16	34	33	31	39
Professionals, management and direction, owners of medium-sized enterprises	556	585	625	717	698	762	786	821	765	701	783	929
Pos. lower supervision. or inspected. of occupation. non-manual, props. peqs. companies	325	416	369	393	410	504	493	509	549	460	455	548
Routine non-manual occupations	153	167	140	172	186	193	188	212	193	186	206	233
Supervision of manual work	63	86	53	61	89	94	145	103	95	89	75	104
Specialized manual occupations	96	132	134	119	148	161	211	179	167	192	152	217
Unskilled manual occupations	18	37	30	26	24	34	40	42	39	36	34	51
Other	0	0	0	0	0	0	0	0	0	0	0	0
Total	1248	1504	1428	1537	1612	1800	1932	1932	1894	1771	1789	2200

Table 27. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	49	65	58	93	121	145	197	181	186	215	186	49
Senior political and administrative, owners of large companies	35	27	37	34	88	93	54	77	53	81	63	35
Professionals, management and direction, owners of medium-sized enterprises	976	1020	1043	1282	1349	1290	1286	1323	1261	1584	1487	976
Pos. lower supervision. or inspected. of occupation. non-manual, props. peqs. companies	722	734	779	665	623	523	567	504	513	601	586	722
Routine non-manual occupations	295	277	278	295	268	278	278	346	331	329	393	295
Supervision of manual work	127	117	119	86	71	64	78	65	64	66	91	127
Specialized manual occupations	260	250	257	295	203	249	219	224	221	260	259	260
Unskilled manual occupations	65	50	71	89	80	96	107	100	107	103	116	65
Other	27	27	37	2915	168	256	247	241	296	336	355	27
Total	2556	2567	2679	2877	2971	2994	3033	3061	3032	3575	3536	2556

Note: N.a. if no data available. The Category of other has included small categories that have changes in the questionnaire over time.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 28. 1987-2010 Subscribers Father's Level of Education

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	123	1035	666	348	375	382	428	666	838	866	698	647
Not attended school	151	343	246	351	306	345	286	383	284	213	203	257
First to fourth year of a degree (elementary education) incomplete	1428	2598	2151	2467	2374	2636	2273	2773	2287	1648	1497	1643
First to fourth year of a degree (elementary education) completed	2238	4470	3943	4367	4365	4534	3980	4796	3762	2540	2389	2315
Fifth to eighth grade in a school (elementary school) incomplete	874	2013	1784	2136	2114	2163	1966	2390	1912	1516	1392	1495
Fifth to eighth grade in a school (elementary school) completed	1005	2363	2215	2761	2464	2573	2118	2830	2419	1770	1679	1765
First through third grades of the second degree (high school) incomplete	539	1272	1219	1441	1383	1527	1283	1792	1649	1296	1175	1160
First through third grades of the second degree (high school) completed	1895	4697	4571	5254	5203	5133	4717	6165	5938	4705	4427	4663
Incomplete higher or more	694	1918	1937	2161	2227	2394	2361	2970	2971	2502	2481	2784
Complete higher or more	4313	11683	12200	14386	14757	15935	15423	19260	18678	16454	16010	16598
Total	13260	32392	30932	35672	35568	37622	34835	44025	40738	33510	31951	33327

Table 28. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	590	815	711	765	842	2168	2936	2991	3020	2781	2462	2502
Not attended school	211	381	340	352	411	503	826	564	483	407	336	335
First to fourth year of a degree (elementary education) incomplete	1824	2313	2522	2551	2418	3221	3796	3148	2695	2398	2056	2110
First to fourth year of a degree (elementary education) completed	2621	3131	2986	2921	2840	2537	2551	2080	1698	1581	1331	1311
Fifth to eighth grade in a school (elementary school) incomplete	1725	1932	2127	2200	2194	2157	2263	1962	2031	2277	2027	2207
Fifth to eighth grade in a school (elementary school) completed	1823	2124	2167	2287	2297	2339	2351	2096	2009	1760	1596	1730
First through third grades of the second degree (high school) incomplete	1506	1781	1856	2058	1900	1957	1844	1749	1733	1774	1803	2029
First through third grades of the second degree (high school) completed	5568	6351	6985	7656	7843	8637	9409	8923	8928	9374	9499	11172
Incomplete higher or more	3409	3859	4261	4627	4696	4872	5538	5198	5369	4834	4994	5337
Complete higher or more	18869	20413	21360	21848	21051	22158	22261	20895	22253	22291	23218	26751
Total	38146	43100	45315	47265	46492	50549	53775	49606	50219	49477	49322	55484

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

Table 29. 1987-2010 Subscribers Enrolled, Father's Level of Education

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Blank	5	36	**24**	8	13	14	17	23	30	46	30	40
Not attended school	4	13	**13**	17	15	12	14	7	11	10	6	17
First to fourth year of a degree (elementary education) incomplete	83	118	**98**	68	105	117	139	112	92	83	78	96
First to fourth year of a degree (elementary education) completed	124	187	**164**	149	156	164	218	188	173	161	124	154
Fifth to eighth grade in a school (elementary school) incomplete	62	83	**76**	74	73	90	108	100	69	74	80	95
Fifth to eighth grade in a school (elementary school) completed	91	92	**86**	99	92	105	113	101	110	100	64	131
First through third grades of the second degree (high school) incomplete	41	50	**53**	45	49	54	68	60	71	66	58	64
First through third grades of the second degree (high school) completed	203	199	**194**	223	236	239	267	260	267	254	250	293
Incomplete higher or more	67	107	**78**	93	98	128	100	148	156	127	147	162
Complete higher or more	568	619	**642**	761	775	877	888	933	915	850	952	1148
Total	1248	1504	**1428**	1537	1612	1800	1932	1932	1894	1771	1789	2200

Table 29. Continued

	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Blank	34	30	39	31	37	97	127	170	156	176	186	161
Not attended school	13	14	14	12	17	19	20	19	13	21	15	19
First to fourth year of a degree (elementary education) incomplete	130	118	132	108	126	136	171	149	146	119	112	124
First to fourth year of a degree (elementary education) completed	160	179	136	167	152	106	145	103	82	83	106	73
Fifth to eighth grade in a school (elementary school) incomplete	109	109	113	110	120	99	113	103	114	119	122	130
Fifth to eighth grade in a school (elementary school) completed	108	117	112	123	125	118	119	93	116	119	116	113
First through third grades of the second degree (high school) incomplete	103	113	113	109	102	104	93	99	97	85	111	124
First through third grades of the second degree (high school) completed	327	380	366	414	479	504	501	552	533	563	683	728
Incomplete higher or more	205	268	258	267	328	322	333	320	360	334	388	367
Complete higher or more	1206	1228	1284	1338	1391	1466	1372	1425	1444	1413	1736	1697
Total	2395	2556	2567	2679	2877	2971	2994	3033	3061	3032	3575	3536

Note: N.a. if no data available.
Source: Comissão Permanente para os Vestibulares (COMVEST). 'Perfil socioeconômico', http://www.comvest.unicamp.br/estatisticas/perfil/perfil.html

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